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ABSTRACT

The 20 chapters of this guide to custodial staffing in educational facilities are grouped into five parts addressing: (1) staffing, (2) evaluation, (3) special considerations, (4) staff development tools, and (5) case studies. The five chapters on staffing are all by Jack C. Dudley and are titled: "General Methods"; "The Mathematics of Change"; "The Space Inventory"; "Barton Hall--The Macro Staffing Solution; and "Custodial Areas and Scheduling--The Micro Staffing Solution." The three chapters on evaluation are: "The Cost of Cleaning" (Jack C. Dudley); "How Clean Are You? Determining Your Facility's Level of Cleanliness" (Philip L. Brown); and "Contracting the Cleaning" (Jack C. Dudley). Four chapters address special considerations: "Residence Halls" (Julia Wertz); "Healthcare Facilities" (Jim Adams); "K-12 Facilities" (Tom Spearing); and "Community and Vocational/Technical Colleges" (Jack C. Dudley). Staff development tools are discussed in three chapters: "Hiring, Orientation, and Standard Operating Procedures" (Judy A. Stead); "Training the Staff" (Paul Cortney); and "Team or Specialized Cleaning" (Jim Adams). The last five chapters provide case studies: "Analysis and Reorganization" (Julia Wertz); "Case Study: The Georgetown Experience" (Henry L. Wells and Richard P. Payant); "Case Study: The Toledo Experience" (Judy A. Stead); "Case Study: The Wooster Experience" (Julia Wertz); and "Case Study: The Georgia State Experience" (James E. Sears). Six appendices include information on custodial requirements and unique factors, space classification, standard space descriptions, standard space category matrices, normalized base times and standard activity list, and audit forms. (Contains 66 references.) (DB)



CUSTODIAL STAFFING GUIDELINES

FOR EDUCATIONAL FACILITIES

ORDERLY SPOTLESSNESS

ORDINARY TIDINESS

CASUAL INATTENTION

MODERATE DINGINESS

UNKEMPT NEGLECT



The Association of
Higher Education
Facilities Officers

second edition

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CUSTODIAL STAFFING GUIDELINES

FOR EDUCATIONAL FACILITIES

second edition

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Disclaimer

The concepts and guidelines presented in this publication are intended to assist facilities and custodial managers in the efficient and effective staffing of their custodial operations. These are guidelines only and are not necessarily industry standards. Opinions expressed in this book are those of the authors and do not necessarily reflect the opinions of APPA. Mention of companies and products are for informational purposes only and are not intended by the publisher as an endorsement of any kind.

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Foreword

More than six years have passed since the publication of the first edition of *Custodial Staffing Guidelines for Educational Facilities*. APPA, the original steering committee, and other participants were aware that a need existed for a professional reference that would establish custodial staffing level recommendations. None of us, however, were expecting the level of acceptance by the industry for the methods employed in the first edition.

The unique method by which that first effort was organized is perhaps worthy of review. It incorporated the ideas of both a large number of people as well as individuals with great varieties of responsibilities and experience within the cleaning industry. When the effort began in 1987, there was such a need for some endorsed staffing norms that when the initial APPA-appointed committee began looking for people to get involved, there was a groundswell of expressed interest and enthusiasm.

The "operations committee" for the first edition consisted of Alan S. Bigger, now of the University of Notre Dame; J. Kirk Campbell, now of Carleton College; Jack C. Dudley of INFORMED, Inc. (then at the University of Wisconsin/Parkside); and Robert A. Getz, now of William Rainey Harper College. We thank them for their innovative work. Out-of-pocket expenses for the five committee meetings between 1988 and 1990 came from APPA's Higher Education Facilities Trust. Parent institutions were asked to support the travel costs of participants of the Advisory and Employee Involvement committee meetings.

Other than knowing that there was a need to establish a correlation between the appearance of buildings and cleaning staff levels, we really had no idea as to where the study would lead us. Fortunately, the original Advisory Committee—consisting of 28 cleaning professionals from educational institutions, professional associations, and contractor associations—did give real direction to the study. Additionally, another ad hoc group consisting of first-line supervisors and working custodians, the Employee Involvement Committee, gave good direction as well as strong reinforcement of the Advisory Committee's recommendations.

As the project progressed, responses to news releases built up a mailing list of "support committee" members from more than 400 North American institutions. These colleagues were ultimately contacted to help provide data for the various cleaning times assembled in the publications. With the help of this "grass roots" effort and the various committee meetings, the concepts of Five Levels of Clean, Standard Spaces, and Standard Space Matrices evolved

and were assembled in the first edition, initially printed by APPA in 1992. In the intervening years, the data has been used as a tool to compare many institution's cleaning operations to other North American operations, evaluate contract cleaning, create balanced cleaning work assignments, justify staffing levels, defend against Workers Compensation claims, and even to reorganize major cleaning operations.

The initial Advisory Committee, knowing that studies can be endless, recommended that the first edition be printed with data for a limited number of "standard" spaces, and continue collecting data for additional spaces to be published in subsequent editions. This has been accomplished, and data for many new ones were presented in a supplement published by APPA in 1996.

A new committee, the APPA Custodial Analysis and Staffing Task Force, met in March 1996 with two goals:

- To develop a survey tool that would accumulate data from participating APPA institutions and enable custodial managers to analyze their respective operations in a more professional manner. They would also be able to more accurately compare the specifics of their operation to another custodial operation.
- Develop the format of the second edition of *Custodial Staffing Guidelines* and make writing assignments to contributors who were well versed in the particular subject matter.

This task force wanted to go a step further than simply providing the staffing data and calculation techniques. We also wanted to share real-world examples of the many ways the custodial guidelines have been used by various organizations during the years since the first edition was published. The purpose of these examples is to make the guidelines more useful and to provide "best practices" to managers for their reference and when analyzing and defending their operations. We hope we have accomplished this goal.

Greg Fichter
Indiana University
*Chair, APPA Custodial Analysis
and Staffing Task Force*

Preface

Every educational institution is unique; no two campuses are the same in construction or environment. Maintenance standards and staffing levels can be significantly affected by such factors as traffic density, frequency of use of the facility, age of the facility, materials used in construction, level of vandalism, climatic conditions, location of custodial space, and the organization and training of staff and the material and equipment available to them. Nonetheless, experience by users of the first edition of *Custodial Staffing Guidelines for Educational Facilities* found more similarities than differences. They also found that differences in appearance could largely be attributed to staffing levels, and in many instances they were able to defend or improve the staffing levels of the custodial operation with the senior administration based on the North American "norms" presented in the book. Many users also reorganized their entire custodial operation based on those same "norms." Several of these experiences are recorded in this edition.

For this second edition, most of the features of the first edition have been retained. Included are the five levels of cleaning as well as the APPA recommendation that Cleaning Level 2 be the targeted appearance goal in an institution's buildings. After the first edition was published, some of the original authors continued to develop data for more space types than the original ten identified. That information was published by APPA in an addendum in the summer of 1996 and is included here. Subsequently, we accumulated data on healthcare spaces at the Yale University School of Medicine and included it here.

The format of the matrices was modified to take into account the fact that some institutions can stop performing routine cleaning activities and do project tasks during break periods. When an institution is utilized year-round with no breaks in the routine cleaning, additional staff is required to concurrently perform the project tasks. The new "created" space categories are ones that were not directly studied, but borrow data from similar space types that *were* studied. This provided more options for the "treat like" exercise. In the first edition, only one "created" standard space, the Research Lab with Hazardous Waste, was included. In this edition, several more are included.

We wanted this edition to include ways that the APPA guidelines have been used by a variety of institutions in the intervening six years. Therefore, this edition looks at a variety of categories of educational institutions with special circumstances, such as K-12 schools and community colleges, which

can be easily analyzed with the guidelines. We have also examined special operational modes such as team and contract cleaning and how they can be evaluated with the guideline's techniques. Finally, the ultimate goal of a thorough operational evaluation is increased operational efficiency and effectiveness. To achieve this, it is frequently necessary to bring about organizational change. Steps and considerations necessary to facilitate change are described, and we include the actual change experiences of four operations.

Chapter 1 describes the general concepts behind the methods and defines the five cleaning levels, the assignable area per custodian in each space type at each level of clean, and some examples to demonstrate how required number of cleaning staff is calculated.

Chapter 2 contains the summary of the data collected on cleaning presented in the matrix format developed for the first edition of the guidelines. Included are instructions for using them to both compare your operation to North American "norms" and modify them to model and predict staffing levels needed.

Chapter 3 provides explicit methods on how to use the APPA concepts, which start with a detailed inventory of all space to be cleaned.

To illustrate a comprehensive overview of how a staffing model is developed, Chapter 4 revisits Barton Hall, the 40,000-square-foot example of the first edition, and develops the staffing requirements at each of the five APPA levels of clean. Effects of employee leave requirements and non-cleaning activities are also discussed here.

Chapter 5 examines how balanced employee cleaning schedules are created using the guideline methods. Although the arithmetic may look complex, it does provide a mathematical rationale to justify staffing assignments. It should be noted that the organizational changes reported on in the last three chapters were accomplished without the detailed calculations.

Chapter 6 provides a method to arrive at the total costs of cleaning, using the guidelines staffing model. Chapter 7 provides an evaluation tool for inspecting your buildings so you can determine whether you are getting the level of clean your staffing should be able to provide. The result of an inspection using these methods is an actual numerical level corresponding to the APPA level of clean. Chapter 8 identifies some elements necessary for a successful contract cleaning specification.

Chapters 9 through 12 look at special considerations to take into account when using the APPA custodial staffing guidelines to create staffing models in residence halls, healthcare facilities, K-12, and community college facilities.

Chapter 13 provides tools to review hiring, training, and standard operating procedures. Chapter 14 reviews helpful considerations for organizing a training program. Chapter 15 looks at methods to evaluate organizing parts or all of the cleaning effort into a specialized or "team" cleaning operation.

Chapter 16 identifies the circumstances that exist in the change process and points out issues to consider when planning a change. Chapters 17 through 20 are actual change experiences by custodial and facilities managers in which a major organizational change process was successfully managed to bring about increased operational efficiency based on methods delineated in the first edition of *Custodial Staffing Guidelines*.

Many individuals helped in the development and revision of this second edition. Greg Fichter led the task force and kept it directed in its work. Jack Dudley served as primary author of the book, with significant contributions and input from other task force members and authors. Steve Glazner of the APPA staff served as editor and managed the publication through its completion. Special thanks to Peggy Ann Brown, who provided substantive copyediting and proofreading services, and Bob Rand, who provided layout and desktop publishing services. Dave Zinn designed the cover. All task force members contributed to and evaluated several versions of the manuscript, and they made valuable comments and suggestions to improve the book. The following deserve special mention: Paul Courtney, Jack Dudley, Greg Fichter, Bob Lawrence, John Marker, and Judy Stead.

The entire task force believes that this book will continue in the tradition of the first edition in establishing the best professional reference for institutional custodial operations that exist to date. We hope you agree!

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General Methods

Jack C. Dudley

Ground Rules: The APPA method to evaluate custodial staffing is based on three ground rules. They are:

1. **Appearance Levels**—If cleaning activities are accomplished with decreasing frequency, appearance will suffer. Five appearance levels have been defined.
2. **Standard Spaces**—Not all spaces are created equal. Different types of space require different types and amount of cleaning effort. Thirty-three distinct standard space types have been identified for which cleaning data have been accumulated.
3. **All Data Presented in Assignable Square Feet (cleanable square feet, CSF) Per Worker**—This is an industry standard of measure by which comparisons can be made.

Appearance Levels

Although the concept appears elementary, it is often difficult to explain to senior administrators. There is a direct correlation between the available amount of resources and the appearance of the facilities. Therefore, the five levels are mathematically tied, through the accumulated data, to the number of workers required to produce a given level of appearance. Subsequently, the authors determined that these guidelines should describe cleaning requirements to produce five levels of cleanliness. The levels and their appearance factors are:

Level 1—Orderly Spotlessness

- Floors and base moldings shine and/or are bright and clean; colors are fresh. There is no buildup in corners or along walls.
- All vertical and horizontal surfaces have a freshly cleaned or polished appearance and have no accumulation of dust, dirt, marks, streaks, smudges, or fingerprints. Lights all work and fixtures are clean.
- Washroom and shower fixtures and tile gleam and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 2—Ordinary Tidiness

- Floors and base moldings shine and/or are bright and clean. There is no buildup in corners or along walls, but there can be up to two days worth of dust, dirt, stains, or streaks.
- All vertical and horizontal surfaces are clean, but marks, dust, smudges, and fingerprints are noticeable upon close observation. Lights all work and fixtures are clean.
- Washroom and shower fixtures and tile gleam and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 3—Casual Inattention

- Floors are swept or vacuumed clean, but upon close observation there can be stains. A buildup of dirt and/or floor finish in corners and along walls can be seen.
- There are dull spots and/or matted carpet in walking lanes. There are streaks or splashes on base molding.
- All vertical and horizontal surfaces have obvious dust, dirt, marks, smudges, and fingerprints. Lamps all work and fixtures are clean.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 4—Moderate Dinginess

- Floors are swept or vacuumed clean, but are dull, dingy, and stained. There is a noticeable buildup of dirt and/or floor finish in corners and along walls.
- There is a dull path and/or obviously matted carpet in the walking lanes. Base molding is dull and dingy with streaks or splashes.
- All vertical and horizontal surfaces have conspicuous dust, dirt, smudges, fingerprints, and marks. Lamp fixtures are dirty and some lamps (up to 5 percent) are burned out.
- Trash containers and pencil sharpeners have old trash and shavings. They are stained and marked. Trash containers smell sour.

Level 5—Unkempt Neglect

- Floors and carpets are dull, dirty, dingy, scuffed, and/or matted. There is a conspicuous buildup of old dirt and/or floor finish in corners and along walls. Base molding is dirty, stained, and streaked. Gum, stains, dirt, dust balls, and trash are broadcast.
- All vertical and horizontal surfaces have major accumulations of dust, dirt, smudges, and fingerprints, all of which will be difficult to remove. Lack of attention is obvious.
- Light fixtures are dirty with dust balls and flies. Many lamps (more than 5 percent) are burned out.

- Trash containers and pencil sharpeners overflow. They are stained and marked. Trash containers smell sour.

Standard Spaces

The second ground rule: We established 33 standard area types and identified cleaning activities required to attain each respective level of cleanliness. Hundreds of respondents from educational institutions contributed data to establish cleaning times for the activities in each space category. The size of each standard space is defined by "cleanable square feet" (CSF) and the fixed and movable contents of the area. Cleanable square feet is wall-to-wall area.

Staffing Level Summary

The third ground rule is the requirement that the format of the results must be cleanable square feet assigned to each custodian. Figure 1 summarizes the basic data used in the guidelines for staff predictions in units of assignable square feet per custodian rounded to the nearest hundred square feet. Although actual staffing can vary, these are good figures to make a rough estimate of staff required. They dramatically demonstrate the variable cleaning requirements for different space types and cleaning levels. The results presented assume 420 productive minutes per shift per custodian. The details of how the summary is developed from the survey data will be presented in Chapter 2. Subsequent chapters will address the process for identifying variables that exist in your institution.

Synopsis of the Methods

In order to use the material in this book you must create an inventory of each space for which you are responsible. The more accurate the inventory is, the more accurate your results will be. Each space in the inventory must be measured in CSF or wall-to-wall area in square feet and be assigned one of the APPA space categories. If you do not see an exact match of an APPA category for your space, choose one that is similar and assign that category. Later, in the Barton Hall staffing example in Chapter 4, there is a "Treat Like" exercise that explains this in detail. For example, a Conference Room can be "Treated Like" an Office. If there is no close match, you may have to develop your own data for a given space.

Each standard space has cleanable square feet that can be assigned to a custodian. The number of staff required to clean a given number of square feet is calculated by dividing that measurement by the square feet assigned to each custodian. The result will be different for each cleaning level, since the CSF assignment will increase with a poorer appearance classification. The method assumes that cleaning time is directly proportional to the area of a given space. Although the staffing level summary is simplistic, its accuracy

Figure 1 Staffing Service Levels

APPA Standard Space	Level #1	Level #2	Level #3	Level #4	Level #5
Classroom with Hard Floor	8,500	16,700	26,500	39,500	45,600
Entranceway	4,300	7,500	12,300	20,700	35,000
Locker/Changing Room - No Shower	11,800	12,100	xxxx	xxxx	xxxx
Office with Carpet Floor	9,600	18,200	32,000	53,000	87,000
Public (Circulation) with Hard Floor	7,500	20,500	30,500	38,400	41,800
Research Lab with Hazardous Waste	5,200	7,000	8,200	11,400	28,200
Research Lab without Hazardous Waste	6,900	10,600	13,500	25,000	87,200
Stairwell	7,500	15,100	17,400	24,500	75,300
Storeroom	77,000	210,000	395,300	1,832,700	3,360,000
Washroom	2,000	2,600	xxxx	xxxx	xxxx
Shower Room	5,200	5,200	xxxx	xxxx	xxxx
Public (Circulation) with Carpet Floor	17,700	40,400	53,500	80,900	93,600
Office with Hard Floor	8,400	14,600	25,100	36,000	49,500
Classroom with Carpet Floor	9,700	21,700	24,000	34,700	37,200
Classroom with Carpet Floor-High Use	5,100	12,700	13,400	17,900	18,800
Classroom with Hard Floor-High Use	4,700	9,600	10,100	21,000	22,900
Washroom-High Use	1,000	1,300	xxxx	xxxx	xxxx
Utility	4,100	5,500	9,800	17,700	45,700
Vending	4,800	11,100	16,000	17,700	19,500
Dormitory Lounge	5,200	8,700	17,800	42,900	136,500
Cafeteria with Carpet	9,900	15,400	xxxx	xxxx	xxxx
Cafeteria with Hard Floor	11,200	16,400	xxxx	xxxx	xxxx
Library with Carpet	17,900	36,900	72,600	106,400	126,800
Library with Hard Floor	10,900	20,200	23,500	47,000	57,000
Auditorium Seating & Foyer	5,700	14,000	32,600	67,200	408,000
Auditorium Stage & Wings	18,600	27,500	82,800	239,500	xxxx
Gymnasium (Wood Floor)	17,300	36,500	80,700	257,400	1,108,200
Dormitory Washroom	1,500	1,800	xxxx	xxxx	xxxx
Dormitory Sleep/Study	3,900	4,100	8,000	18,700	24,700
Patient Conference Room	8,300	8,300	xxxx	xxxx	xxxx
Patient Treatment Area — Carpeted	3,300	3,300	xxxx	xxxx	xxxx
Patient Treatment Area — Hard Floor	2,900	2,900	xxxx	xxxx	xxxx
Nursing Station — Hard Floor	5,700	5,700	xxxx	xxxx	xxxx

can be highly developed using methods described in Chapter 2. Even so, the summary can be used to quickly answer many questions such as:

- How many custodians do I theoretically need to clean my facility at a specific level of cleanliness?
- Given CSF for each type of area and FTE, what is my theoretical cleaning level?
- How many custodians do I need to improve service? (This can be a double-edged sword.)
- How many minutes should it take to clean a specific room?

Results here are theoretical because they are based on "averages." Your results may differ from the calculations because of a number of variables; these will be discussed in later chapters. Take a few minutes to go through the following exercises; it is an important process that will help to fix the concepts in your mind.

Example 1

Your campus has 251,876 square feet of space assigned to classrooms with hard floors, and 6 custodians to clean that space. Identify your current theoretical cleaning level on Figure 1 and calculate the number of custodians required to clean at Level 2.

Current position:

- ✦ 251,876 CSF divided by 6 custodians = 41,979 sq. ft. per custodian. Refer to Figure 1, Classroom with Hard Floor. Level 4 is 39,500 CSF, and Level 5 is 45,600 CSF, so your level will fall between these two levels and you would expect a corresponding appearance.

Additional custodians required to clean at Level 2:

- ✦ 251,876 CSF divided by 16,700 (assignable CSF per custodian at Level 2) = 15.08 (round off to 15.1), since you already have 6 custodians, an additional 9.1 custodians will be required.

Example 2

You have a 2,640 CSF room which is designated as a Chemistry Lab. How long should it take to clean that space at Level 2?

- ✦ Assume the space can be "Treated Like" a Research Lab without Hazardous Waste, with a 10,600 CSF per custodian assignment at Level 2. 2,640 CSF divided by 10,600 CSF per custodian = 0.249 FTE. Since the summary is based on 420 minutes per shift, it will take $0.249 \times 420 = 104.6$ minutes to clean that space.

Example 3

You have a Workers Compensation hearing scheduled in which a worker is claiming job stress due to overwork and wants to be awarded a disability. He is assigned 18,000 CSF of carpeted offices in his 7-productive-hour shift (420 minutes), with activities to be performed at Level 2 frequencies. As shown in Figure 1, the APPA guidelines say the worker can do 18,200 CSF. This was an actual experience. The claim was denied.

The Mathematics of Change

Jack C. Dudley

The Space Category Matrix

Summarizing the three ground rules:

- ① If cleaning activities are performed at decreasing frequencies, the facilities will appear dirtier.
- ② Different types of space require different cleaning activities and different amounts of time to provide a given level of appearance.
- ③ The format of the results of the study must be presented in units of cleanable square feet assigned per custodian.

The Space Category Matrices put hard numbers behind these requirements so that the staffing predictions can be made. To call attention to the differences in space types, we defined "Standard Spaces." The 33 space types are described in Appendix C, and matrices are located in Appendix D. APPA's "Standard Spaces" serve as a common denominator even though you may find variances at your institution. They are used to identify cleaning activities that are performed in similar spaces and provide a time estimate for each activity.

Every matrix is designed in rows and columns. Rows should be read horizontally, and columns should be read vertically. Please refer to Figure 2, a standard space matrix for a classroom with hard floor. The left-hand column lists all of the cleaning activities typically performed in a classroom. The upper group, the Routine Activities, are those that are performed at a frequency of weekly or more often at cleaning Level 2. The lower group, Project Activities, are the remainder. One reason for this distinction is that some institutions have relatively long periods of time when students and instructors leave and the staff can stop doing routine work in order to focus on project tasks. Organizations that operate this way are called "resource leveled," and they can operate with less staff than organizations that must perform routine work year-round.

Each number in the far right-hand column called "Base Time" is the average time, expressed in minutes and hundredths of minutes, as determined from APPA data, to perform the cleaning activity described in the corresponding row. Remember, the data included in the matrices represents an average obtained from hundreds of universities. Therefore, when you use

Figure 2 Classroom with Hard Floor Standard Space Matrix

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Spot clean walls and doors	D 3.90	W 0.78	M 0.19	S/A 0.03		3.90
Relamp	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	3.91
Clean chalkboards and trays	D 4.20	D 4.20	D 4.20	A/D 2.10	A/D 2.10	4.20
Dust flat surfaces	D 5.50	W 1.10	W 1.10	M 0.26		5.50
Empty waste containers	D 0.70	D 0.70	D 0.70	A/D 0.35	A/D 0.35	0.70
Empty pencil sharpeners	D 0.60	D 0.60	D 0.60	A/D 0.30		0.60
Sweep, dust-mop floors	D 16.4	D 16.4	A/D 8.20	A/D 8.20	A/D 8.20	16.40
Clean erasers	D 0.60	D 0.60	D 0.60	A/D 0.30	A/D 0.30	0.60
Adjusted minutes subtotal	31.99	24.47	15.68	11.64	11.04	
CSF/Custodian	15,755	20,597	32,143	43,299	45,652	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	
Dust blinds	M 0.30	A 0.03	A 0.03			6.30
Project-clean furniture and seating	Q 1.95	A 0.49	A 0.49			122.00
Clean trash containers	W 0.28	S/A 0.01	S/A 0.01	A 0.01		1.40
Dust vents	M 0.07	Q 0.02	S/A 0.01	S/A 0.01	A 0.00	1.50
Perform interim floor care	Q 1.76	Q 1.76				109.70
Strip/refinish floors	A 0.83	A 0.83	A 0.83	A 0.83		208.30
Clean windows	S/A 0.12	A 0.06	A 0.06			15.10
Project-clean light fixtures	A 0.78	A 0.78	A 0.78			195.40
Spray-buff/burnish floors	W 3.74	M 0.90	Q 0.30	S/A 0.15		18.70
Damp-mop floors	D 17.10	M 0.82	M 0.82	S/A 0.14		17.10
Adjusted minutes subtotal	26.94	5.70	3.33	1.13	0.00	
Total adjusted minutes	58.93	30.17	19.01	12.77	11.04	
CSF/Custodian	8,554	16,705	26,512	39,468	45,652	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00
 A/D — Alternate days / 0.50
 W — Weekly / 0.20
 M — Monthly / 0.048

Q — Quarterly / 0.016
 S/A — Semiannually / 0.008
 A — Annually / 0.004
 D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,200 cleanable square feet (CSF).

the data for comparison, you are comparing yourself to what other institutional cleaning managers are doing. However, the data presented in the matrices corresponds closely to existing engineered time standards such as those developed by the International Sanitary Supply Association.

The time standards listed in each matrix is based on the amount of time required to perform a given activity in the cleanable square feet of that particular space as indicated in the lower right corner of the matrix. Example, Figure 2 shows, in the lower right corner, that the standard classroom adjusted minutes are based on 1,200 CSF.

In the "Level" columns, the frequency (Daily, Alternate Days, etc.) with which each cleaning activity is performed is shown at the respective staffing service level. Also shown is the amount of time, in "Adjusted Minutes," necessary to set aside each day to perform that activity at its given frequency. The idea here is that you "reserve" time during the day to do the cleaning that you are required to do. For instance, it takes 3.90 minutes (the base time) to spot-clean walls and doors in the standard classroom. If, as in cleaning Level 1, the activity is done daily, then 3.90 minutes must be reserved on a daily basis to do it. However, in Level 2, the spot-cleaning activity is only done weekly. Time must still be reserved to do it, but only one-fifth of the base is reserved for each day, or 0.78 minutes. It can be visualized that the custodian assigned that space either spot cleans only one-fifth of the spots daily, *OR*, more realistically, fills that reserved time for four days with other cleaning activities until the day scheduled for spot-cleaning arrives. Professional custodians will adjust their daily workload accordingly.

Refer to the bottom of Figure 2 to locate the frequency and daily adjustment factor codes. That one-fifth "multiplier" for weekly activities is what we call the "Daily Adjustment Factor." There is a numerical factor for each cleaning frequency. That factor is a fraction with 250 as the denominator, representing 260 working days per year less 10 holidays. The numerator is the number of days per year that a given cleaning activity is performed. It is shown as a decimal fraction at the bottom of each matrix. The only exception is the relamping activity, where the life of the lamp is greater than one year. For example, in the classroom, the 36 fluorescent fixtures have lamps with an average life of 15,000 hours and they are used 2,500 hours (10 hrs. per day, 250 days) per year. If the life of the bulb is stated to be six years, you would reserve $(3.91 / 6) = .65$ minutes per year per fixture to relamp them. Since there are 36 fixtures, you would reserve $(36 \times .65 / 250) = 0.09$ minutes per day. We called that time "Daily Adjusted" to distinguish it from the other annually based ones, but the units of minutes are the same.

The "Adjusted Minutes" can be added, in any given Cleaning Level column, to arrive at a total number of "Adjusted Minutes." This total represents the amount of time that must be reserved daily to perform all identified cleaning activities, at the frequency stated for each level, in that standard space.

To determine the number of square feet of each type of space that a cleaning worker can be assigned, identify the total time each worker has available. The matrices are based on seven hours (420 minutes). This is a guideline and there will be variations from institution to institution. Refer to Chapter 5 for additional information.

As an example, at Level 2, 30.17 adjusted minutes are required to clean the 1,200 CSF standard classroom. In 420 minutes a worker can clean $(420 / 30.17) = 13.92$ standard 1,200 CSF Classrooms, or be assigned $(13.92 \times 1,200) = 16,705$ CSF. As you review these space assignments, observe that as activities are reduced in frequency or eliminated, the appearance level deteriorates due to the increase of cleanable square feet assigned per worker. Also, the assignable area for classrooms at any given level is different than that for other area types, demonstrating that "not all space is created equal."

These published area assignments are your "guideline" for comparisons of your staff to other institutions. You will need to evaluate the general level of cleaning that exists or that is desired in your facilities so that you can enter the matrices in the correct column. Your baseline can be determined by following the steps outlined in Chapter 7.

Resource Leveling: When Do You Schedule Your Project Work?

Each Standard Space Matrix is divided into two sections: Routine Cleaning Activities and Project Cleaning Activities. The distinction between the two is that "routine" tasks are those that are performed weekly or more frequently. APPA recommends cleaning Level 2 as the reasonable standard. Therefore, the authors used this level to identify the placement of activities, i.e., routine or project.

The purpose for the differentiation is that some institutions stop performing routine cleaning tasks during periods when students and instructors leave. Staff then turns their focus on completing "project" activities. If this is the case at your institution, then you would estimate your staffing requirements using the larger assignable areas (smaller adjusted minutes). This is located on the bottom line of the routine chart of the Routine Activities section. This operational mode is referred to as "resource leveled." If you do not have those periods of time and you must perform routine and project activities concurrently, then you need additional personnel for projects and would use the lower totals to estimate staffing requirements. This means that you either set aside a part of each worker's week for projects, have some workers that only do project work, or some combination thereof. Refer to Chapter 5 to learn more.

How To Make The Matrices Reflect You . . . Beyond Baselining

We use the term "baselining" in comparing a given operation to a set of accepted standards. So, once you've finished the comparison/baselining/justification of staff, you will want to modify or create new matrices to better

reflect your actual operation. The APPA method was developed to do this easily. Several examples follow.

Example 1

You are "resource leveled," clean your hard floor classrooms with activities at the frequencies given for Level 2, but do not relamp or empty pencil sharpeners. You do dust blinds weekly. Assuming you get 7 productive hours of work, how many CSF of classrooms can you assign your staff per shift?

- By being "resource leveled," only the upper portion of the matrix is needed to identify cleanable assignable square feet assigned per custodian for routine-work activities. We recommend creating new matrices any time you solve these types of problems. Since you are only concerned with a specific frequency of cleaning for each task, only one column of adjusted minutes is needed to get the appropriate answer. The new "matrix" column will look like Figure 3.

Figure 3 New Classroom with Hard Floor Matrix, Routine Activities, for Example 1

Routine Activities	Frequency	Adjusted Minutes	Base Time
Spot Clean Walls & Doors	W	0.78	3.90
Clean Chalkboards & Trays	D	4.20	4.20
Dust Flat Surfaces	W	1.10	5.50
Empty Waste Containers	D	0.70	0.70
Sweep, Dust-mop Floors	D	16.40	16.40
Clean Erasers	D	0.60	0.60
Dust Blinds	W	1.26	6.30
Adjusted Minute Subtotal		25.04	
CSF/Custodian		20,128	

The Adjusted Minute Subtotal is simply the arithmetic sum which equals 25.04 minutes. Note that using the 6.3 base time minutes for blind cleaning is the same since the space is still 1,200 CSF. The adjusted minutes for blind cleaning, from the bottom of the matrix, changed from 0.03 for an annual basis (6.30×0.004) to 1.26 for a weekly basis (6.3×0.20). Using the previous rationale to get assignable CSF, the worker can clean $(420 / 25.04) = 16.77$ standard 1200 CSF classrooms per shift. Therefore $(1,200 \times 16.77)$ or 20,124 CSF can be assigned per worker.

Example 2:

For the same organization as in the previous example, some classrooms with hard floors have lab sinks that must be cleaned weekly. How many CSF of this type of space can be assigned to your workers?

- To identify this, create the usual new matrix which will look like Figure 3, except for the added task of lab sinks. We need a "time" for lab sink cleaning, however. It would certainly be acceptable to just measure the time it takes someone to perform the task. You could also look to see if that activity is included in some other standard space and just "import" it, making certain that data is adjusted accordingly. For instance, the lab sink cleaning activity in the 324 CSF Research Laboratory with Hazardous Waste standard space takes 4.44 minutes. Assuming the proportion of sinks in the 1,200-CSF classroom to total room area is the same as in the research lab, you would increase those 4.44 minutes by $(1,200 / 324) = 3.70$, to get 16.43 base minutes. Since the activity is done weekly,

the amount of daily time reserved is $(0.20 \times 16.43) = 3.29$ adjusted minutes. The new matrix would look as follows.

Figure 4 Classroom with Hard Floor and Laboratory Sink for Example 2

Routine Activities	Frequency	Adjusted Minutes	Base Time
Spot Clean Walls & Doors	W	0.78	3.90
Clean Chalkboards & Trays	D	4.20	4.20
Dust Flat Surfaces	W	1.10	5.50
Empty Waste Containers	D	0.70	0.70
Sweep, Dust-map Floors	D	16.40	16.40
Clean Erasers	D	0.60	0.60
Dust Blinds	W	1.26	6.30
Clean Lab Sinks	W	3.29	16.43
Adjusted Minute Subtotal		28.33	
CSF/Custodian		17,990	

The 28.33 adjusted minute subtotal means a worker could clean $(420 / 28.33) = 14.82$ classroom spaces like this in a seven-hour shift. This translates to $(1,200 \times 14.82) = 17,784$ assignable CSF per worker. Note how the APPA method assumes that the 1,200 CSF Classroom has lab sinks that are 3.70 times more lab sinks than the 324 CSF Laboratory. For the most part, this assumption works quite well. There are instances, however, when the proportionality basis does not work. It will be discussed in Chapter 5.

Example 3:

The budget officer in the institution above, while negotiating with the union, asks you the effect of offering an additional 15-minute break as a "no-cost" contract sweetener. Your shifts currently have seven productive hours, and 20 workers clean 411,940 CSF of Hard Floor Classrooms at Cleaning Level 2 (20,597 CSF per custodian). In this example, we will only use classroom data, but in actuality you would change the productive minutes in all space categories you are using and perform the staffing calculation as in Chapter 4.

- ✦ In order to provide a response, we need more than one cleaning level column, so let's return to the routine activity section of the basic matrix, Figure 2, and take the adjusted minute subtotal for the five cleaning levels. See Figure 5. The CSF per Custodian is calculated the same way as before, but now the productive minutes per day will be $(420 - 15) = 405$ minutes. For Level 1, each worker can clean $(405 / 31.99) = 12.66$ standard classrooms, or $(12.66 \times 1,200) = 15,192$ CSF (563 CSF less than originally). The remaining cleaning levels are calculated similarly.

Figure 5 Staff Assignable Areas for Routine Cleaning Activities in the Standard Classroom at 405 Productive Shift Minutes

Routine Activities	Level 1	Level 2	Level 3	Level 4	Level 5
Adjusted Minute Subtotal	31.99	24.47	15.68	11.64	11.04
CSF/Custodian	15,192	19,861	30,995	41,753	44,021

There are two solutions here. In order to continue cleaning at Level 2, $(411,940 \text{ CSF} / 19,861 \text{ CSF per worker}) = 20.74$ workers, or an additional three-quarter-time FTE will be required. If no additional staff is hired, the original 20,597 CSF per worker still stands, but since the shift is shorter, fewer cleaning activities can be performed. Calculating, the new cleaning level turns out to be about 2.1. Each worker can clean $(20,597 / 1,200) = 17.16$ standard classrooms. The time allowance becomes $(405 / 17.16) = 23.60$ adjusted minutes to service each 1,200 CSF classroom instead of the original 24.47. To make up for the lost adjusted minutes $(24.47 - 23.60) = 0.87$, you could offer to cut service from daily to alternate days on waste containers $(0.5 \times 0.70) = 0.35$, pencil sharpeners $(0.5 \times 0.60) = 0.30$, and erasers $(0.5 \times 0.60) = 0.30$. This gives a reduction of $(0.35 + 0.30 + 0.30) = 0.95$ adjusted minutes, more than is theoretically needed but probably reasonably accurate.

This illustrates the variety of options available if one is required to cut services. In order to actually integrate a change like this, all workers' job assignments must be evaluated. This will be discussed in Chapter 5.

Example 4:

You are setting up a summer project schedule and have groups of classrooms totaling 3,645 CSF in which you want to strip and refinish the floors. How much time must be set aside for a worker to do this?

- ✧ Referring to Figure 2, 208.3 minutes are required for 1,200 CSF (base time). $(3,645 / 1,200) \times (208.3) = 632.7$ minutes or 10.5 hours. Two workers may be able to do the job in 5.3 hours.

The Space Inventory

Jack C. Dudley

What Is a Space Inventory and Why Is It Important?

A space inventory is the classification and tabulation of all space, or specific areas such as rooms, in an organization. There are a number of reasons for creating inventories and a number of formats in which inventories are kept. To calculate a staffing model using the APPA custodial guidelines, a specific inventory format is required. The “fields” required in this format are:

1. The building in which the space is located, which can include an alphanumeric identifier.
2. The floor of the building in which the space is located.
3. A unique identifier, numeric and/or alphanumeric (room number), for the space.
4. The institution’s name or identifier for the space.
5. The APPA “standard space” classification of the space (“Treat Like”).
6. The area of the space that is assigned to be serviced by the custodial staff in square feet (cleanable square feet or CSF), usually the “wall-to-wall” square feet.

The first three items locate the space being studied. Item 4, the institution’s name identifier, may not be representative of the character of the space. You must classify each space as one of the APPA standard space definitions. This is because the “standard space” is the mechanism by which unique cleaning times are accumulated and classified. The final component of a complete space inventory is the CSF (Item 6 above). Refer to Chapter 4 for more information.

Classifying Special Spaces

This manual provides 33 standard space categories. For truly unique spaces you may want to create your own, making sure that they are consistent with APPA definitions. For spaces in which the cleaning effort is notably not proportional to area, such as instructional shops, we recommend splitting them into two separate spaces. Typically they are large—2,000 CSF or more—and the custodian only cleans a shop sink, services the soap and towels, and empties the waste receptacles. The shop area should be designated a standard

space nomenclature "Space Only, Tasks Separate" with zero "CSF per Custodian." The shop sink area can be given the same room number as the shop, but with an alpha suffix of "S" or "SINK" to distinguish it. It can be assigned a category of "Utility Room" and enough CSF to accumulate the time necessary to service the area. See Example 2 at the end of this chapter and Example 2 in Chapter 1.

Large Space Inventories

"Larger" organizations tend to have space planning departments that maintain the space inventory. Most often the inventory is in some standardized format and maintained on a computer database. These inventories can be utilized for developing an APPA space inventory since all of the required fields are contained in them, with the exception of the APPA space category classification assignment. Since they will have some space classification method in place, a conversion is needed to help perform the "Treat Like" exercise. Often computer programs can be utilized to do the work. One such exercise recently completed by Montana State University is described in detail in Appendix B. Once an inventory in the APPA format has been established, we recommend that each space be individually inspected for accuracy. Over time, changes in use and remodeling of spaces tend to outdate any database, and a system for updating the database must be implemented.

Cleanable Square Feet (CSF)

Institutional departments use three types of measurement for the areas of campus buildings:

1. **Gross square feet**—This is determined by measuring the sum of the floor area *within* the outside faces of the exterior walls for all areas.
2. **Net square feet**—Space that is measured wall to wall. This space can be assigned, but may not be serviced as a part of the custodial program.
3. **Cleanable square feet**—CSF is the cornerstone concept that enables us to provide valid and reliable benchmarks for our industry. It is the total net square feet that is serviced by the custodial department. Include only space that is cleaned at least once per year. CSF is the unit of measure that most accurately represents what we clean.

Creating a space inventory is a time-consuming but necessary task that must be completed in order to use the APPA guidelines staffing model. If this information is not available, you will have to develop your own. You can work with scale drawings of the spaces, or you can actually measure the spaces. Even if you take measurements from plans, you will want to verify the spaces for accuracy. We recommend the use of electronic tape measures for this purpose.

Figure 6 Example Room

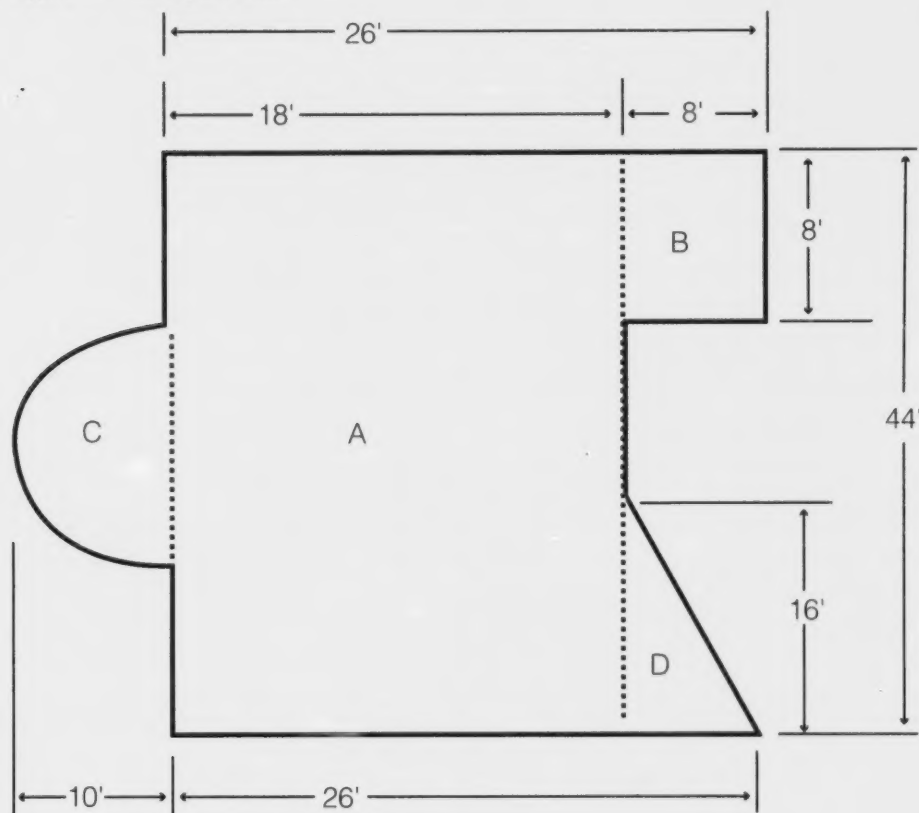
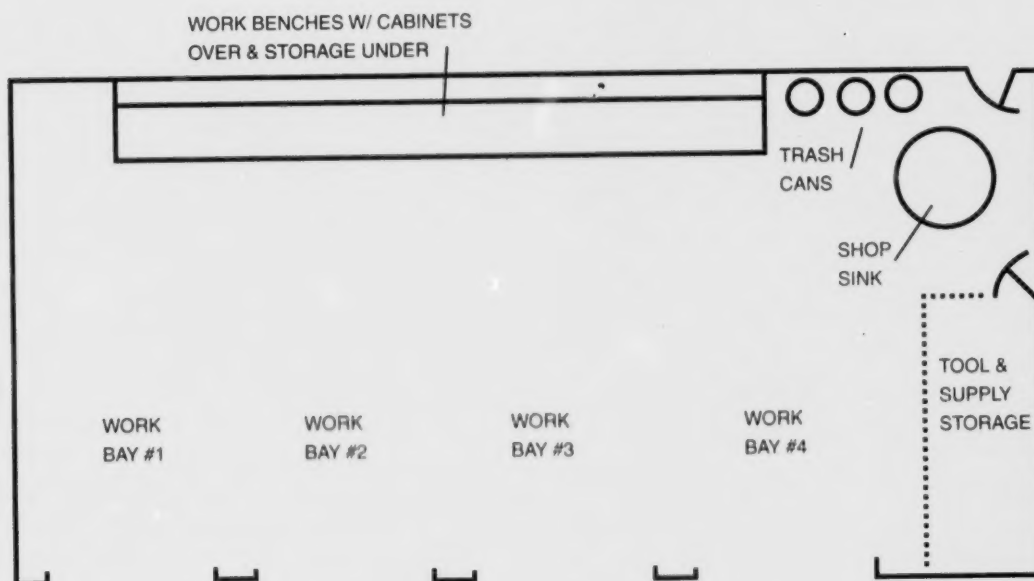
**Example 1:**

Figure 6 is a more unusual one for the sake of an example with dotted lines "carving" it into four simpler areas. The area is calculated as follows:

Area A is a rectangle and the area is	18' x 44'	=	792 sq. ft.
Area B is a square and the area is	8' x 8'	=	64 sq. ft.
Area C is half a circle and the area is	$(3.14 \times 10^2) / 2$	=	157 sq. ft.
Area D is a triangle and the area is	$(8 \times 16) / 2$	=	64 sq. ft.
Total Area			1,077 CSF

There are some spaces in which the cleaning effort is not proportional to its area. Therefore, they cannot be represented by a "standard" space category. The following is an example of how the cleaning effort can be determined and recorded.

Figure 7 Automotive Shop, Room 102, with Sink and Trash Can in One Corner**Example 2**

You have a shop such as the one in Figure 7 and determine that it takes a worker ten minutes to clean the sink, restock the soap and paper towels, and empty the trash can. How do you “fool” the staffing model to assign this amount of time to the space? Assume the shop is 1,800 square feet.

- ✦ The staffing calculated by the APPA methods “proportion” the personnel requirements to the cleanable square feet of the space. Since the cleaning requirements in spaces like this are not proportional to area, the space in which no tasks are performed should be separated from that in which they are. The size of the space in which tasks are performed should be selected to give the amount of time you want to assign to that space. The APPA staffing service levels show that 5,500 CSF of Utility Space can be assigned to a worker in a 420 minute shift at Level 2. In one minute, that worker can be assigned $5,500 / 420 = 13.1$ CSF, and in ten minutes 131 CSF. Thus, your space inventory would look like the following:

Room #	Designated Use	APPA Space Category	CSF
Room 102	Automotive Shop	Space Only, No Tasks	1,669
Room 102S	Auto Shop Sink	Utility, Cleaning Level 2	131

It certainly is not necessary to include in the space inventory that space in which no tasks are performed, since it will not affect the staffing calculation. However, its inclusion will serve as a reminder that the space was actually evaluated, and the numerical total of your space assigned will then be equal to the net square feet of the building.

Barton Hall— The Macro Staffing Solution

Jack C. Dudley

FTE Staff Requirements for Cleaning Tasks by Cleaning Level

Typically, the first use to which managers put the APPA guidelines calculation techniques is a comparison of their staff to that of other North American institutions. This comparison is legitimate since those institutions are the source for the data from which the guidelines' Activity Times are derived. These comparisons, at each level of clean, require the user to have some idea of the cleaning level currently existing in their buildings. For a first cut, an estimate based on a walk through the buildings referring to the Guidelines Appearance Level descriptions will suffice. Chapter 7 contains detailed instructions for conducting a more accurate survey. This first evaluation of your quantity of staff can also be considered a "baselining" exercise. Many guidelines users have applied the results to justify staff to senior institutional officers.

If you have dutifully studied the preceding material, you will note that this exercise reinforces these concepts. As discussed before, a comprehensive space inventory of each facility for which staffing requirements are desired must be completed. The process can be tedious due to the repetition, but you will find the results both rewarding and useful. There is software available to speed up the recording and computing functions. Its source is identified in the bibliography.

To provide an example, a space inventory and staffing determination at each cleaning level for the fictitious "Barton Hall" is presented. For purposes of this example, the assumption is made that the staff is not resource leveled (project activities are performed concurrently with routine cleaning activities). To familiarize the reader with Barton Hall, we have included a photograph of its exterior (Figure 8) and floor plans of the first and second floors (Figures 9 and 10). A suggested format for the space inventory is furnished in Figure 11. Please note that all required fields of each space are identified, which include the location (building, floor, and room number), size (CSF), and designated use as well as the standard APPA Space Category the space is best "Treated Like."



Figure 8 Barton Hall Exterior

The calculations to develop a staffing model, by space category and by cleaning level, are similar to those in Chapter 1. For instance:

Example 1

There are 7,851 CSF of hard surfaced hallways in Barton Hall. How many FTE are required to service them at Cleaning Level 2? At Cleaning Level 3?

- ✦ Referring to Matrix 5, "Public (Circulation) Area with Hard Floors", the assignable CSF per custodian FTE, including project activities is: Level 2 = 20,502 CSF/Custodian, and Level 3 = 30,514 CSF/Custodian. Accordingly, at Level 2, it would require $7,851 \text{ CSF} / 20,502 \text{ CSF per Custodian} = 0.38 \text{ Custodial FTE}$. At Level 3, it would require $7,851 \text{ CSF} / 30,514 \text{ CSF per Custodian} = 0.26 \text{ Custodial FTE}$.

The results of all the calculations for Barton Hall staffing are summarized in Figure 12. Indeed, as the frequency of performing cleaning tasks is reduced, the FTE requirement also diminishes, or vice-versa. Of course, the level of the appearance of the facilities also diminishes. The original advisory committee insisted that there be a minimum cleaning effort recommended for health-sensitive areas such as restrooms. Accordingly, since there is no calculation with cleaning frequencies less than those for Level 2, the percent-

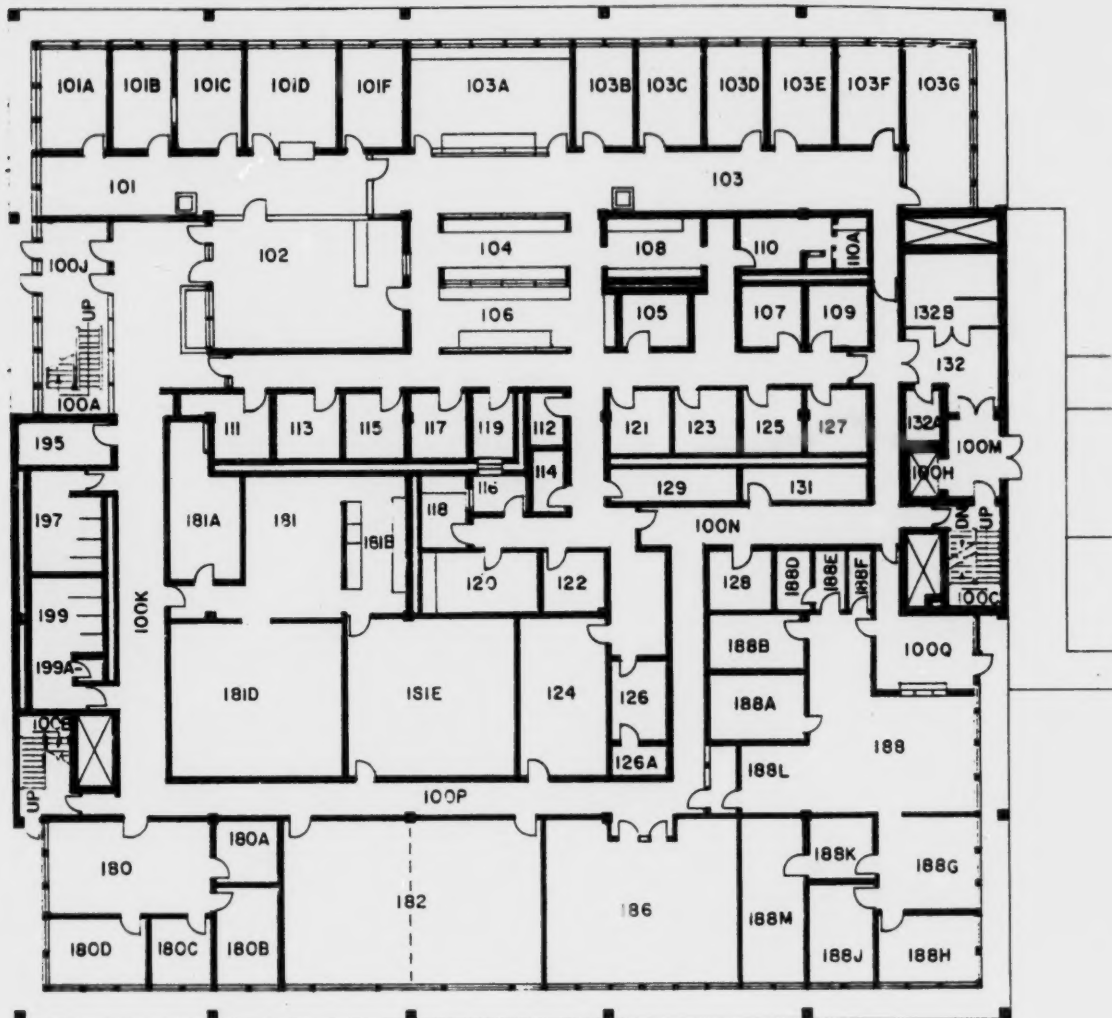


Figure 9 Barton Hall First Floor Plan

age of total effort for restrooms in Barton Hall increases from 12.6 percent at Level 1 to 43.3 percent at Level 5. It may be that by adhering to this decree, results of the computation may appear skewed at the lowest cleaning levels. The intent was to have support for the manager who is being required to cut staff to maintain health standards.

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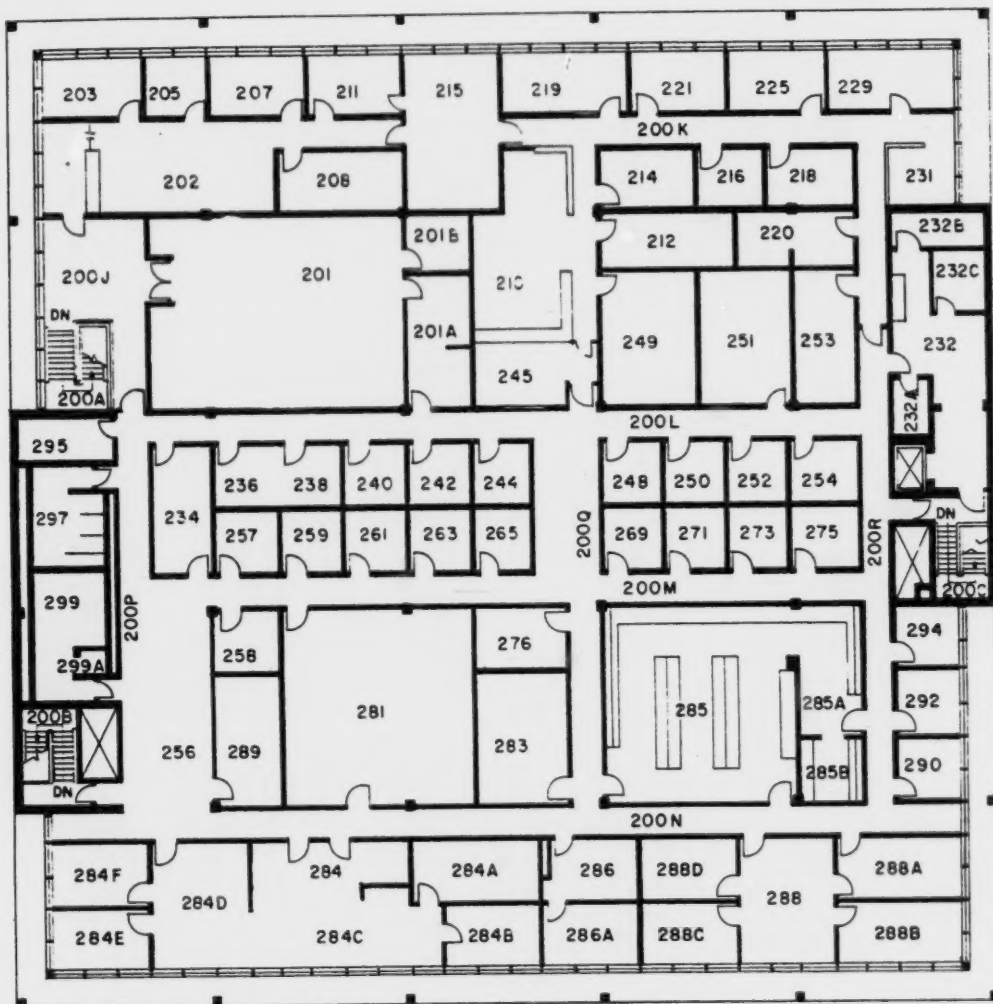


Figure 10 Barton Hall Second Floor Plan

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Room #	APPA Space Category	Designated Use	Square Feet
Building Name: Barton Hall			
Floor: 1			
100A	ENTRANCEWAY	ENTRY	156
100B	STAIRWELL	STAIRS	150
100C	STAIRWELL	STAIRS	113
100H	1OFFICE W/CARPET	ELEVATOR	80
100J	ENTRANCEWAY	ENTRY	156
100K	1PUBLIC (CIRCULATION) W/HARD FLOOR	CIRCULATION	788
100M	1PUBLIC (CIRCULATION) W/HARD FLOOR	CIRCULATION	75
100N	1PUBLIC (CIRCULATION) W/HARD FLOOR	CIRCULATION	625
100P	STAIRWELL	CIRCULATION	431
100Q	1PUBLIC (CIRCULATION) W/HARD FLOOR	CIRCULATION	186
100R	1PUBLIC (CIRCULATION) W/HARD FLOOR	CIRCULATION	1150
101	1PUBLIC (CIRCULATION) W/HARD FLOOR	CIRCULATION	525
101A	1OFFICE W/CARPET	OFFICE	150
101B	1OFFICE W/CARPET	OFFICE	150
101C	1OFFICE W/CARPET	OFFICE	150
101D	1OFFICE W/CARPET	OFFICE	225
101E	1OFFICE W/CARPET	OFFICE	150
102	1OFFICE W/CARPET	OFFICE	531
103	1PUBLIC (CIRCULATION) W/HARD FLOOR	CIRCULATION	825
103A	1OFFICE W/CARPET	OFFICE	375
103B	1OFFICE W/CARPET	OFFICE	150
103C	1OFFICE W/CARPET	OFFICE	150
103D	1OFFICE W/CARPET	OFFICE	150
103E	1OFFICE W/CARPET	OFFICE	150
103F	1OFFICE W/CARPET	OFFICE	150
103G	1OFFICE W/CARPET	OFFICE	263
104	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH	280
105	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH	120
106	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH	280
107	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH	98
108	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH	140
109	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH	90
110/110A	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH	188
111	1OFFICE W/CARPET	OFFICE	125
112	1WASHROOM	MENS TOILET	50
113	1OFFICE W/CARPET	OFFICE	113
114	1WASHROOM	WOMENS TOILET	50
115	1OFFICE W/CARPET	OFFICE	113
116	STOREROOM SPACE	STORAGE	50
117	1OFFICE W/CARPET	OFFICE	113
118	STOREROOM SPACE	STORAGE	100
119	1OFFICE W/CARPET	OFFICE	90
120	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH	156
121	1OFFICE W/CARPET	OFFICE	110
122	STOREROOM SPACE	STORAGE	90
123	1OFFICE W/CARPET	OFFICE	110
124	1OFFICE W/CARPET	CONFERENCE ROOM	288
125	1OFFICE W/CARPET	OFFICE	110
126/126A	STOREROOM SPACE	STORAGE	144
127	1OFFICE W/CARPET	OFFICE	110
128	1OFFICE W/CARPET	OFFICE	110
129	STOREROOM SPACE	STORAGE	150
Detailed Site Space Inventory			

Figure 11 Barton Hall Space Inventory

Room #	APPA Space Category	Designated Use	Square Feet
131	STOREROOM SPACE	STORAGE	150
132A&B	STOREROOM SPACE	STORAGE	390
180A/B/C/	1OFFICE W/CARPET	NURSING INST. OFFICES	816
181/181B	1CLASSROOM W/HARD FLOOR	TEACHING LAB	550
181A	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH	203
181D	1CLASSROOM W/HARD FLOOR	CLASSROOM	576
181E	1CLASSROOM W/HARD FLOOR	CLASSROOM	576
182	1CLASSROOM W/HARD FLOOR	FIRST SEMESTER NURSING CLASSROOM	874
186	1CLASSROOM W/HARD FLOOR	SECOND SEMESTER NURSING CLASSROOM	672
188A/B/L/	1OFFICE W/CARPET	GENERAL ED INSTRUCTOR OFFICES	1830
188D/E/F	STOREROOM SPACE	STORAGE	120
195	STOREROOM SPACE	CUSTODIAL CLOSET	100
197	1WASHROOM	MENS WASHROOM	180
199/199A	1WASHROOM	FEMALE WASHROOM	300
Subtotal of floor 1 of Barton Hall:			18,719
Floor: 2			
200A	STAIRWELL	REAR EAST STAIRS	205
200J	1PUBLIC (CIRCULATION) W/HARD FLOOR	EAST HALLWAY	273
200K	1PUBLIC (CIRCULATION) W/HARD FLOOR	NORTH HALLWAY	286
200L	1PUBLIC (CIRCULATION) W/HARD FLOOR	NORTHWEST HALLWAY	478
200M	1PUBLIC (CIRCULATION) W/HARD FLOOR	SOUTH EAST HALLWAY	427
200N	1PUBLIC (CIRCULATION) W/HARD FLOOR	HALLWAY	581
200P	2PUBLIC (CIRCULATION) W/CARPET	HALLWAY TO DEAN'S OFFICE	154
200Q	1PUBLIC (CIRCULATION) W/HARD FLOOR	SOUTH WEST HALLWAY	282
200R	1PUBLIC (CIRCULATION) W/HARD FLOOR	FRONT EAST HALLWAY	427
201A	1OFFICE W/CARPET	DEAN'S OFFICE	700
201B	1OFFICE W/CARPET	DEAN'S SECRETARY OFFICE	300
201C	1OFFICE W/CARPET	DEAN'S OFFICE WAITING AREA	136
202	1OFFICE W/CARPET	STAFF OFFICE	561
203	1OFFICE W/CARPET	OFFICE	171
205	1OFFICE W/CARPET	OFFICE	96
207	1OFFICE W/CARPET	OFFICE	171
208	STOREROOM SPACE	STORAGE	173
210/245	1OFFICE W/CARPET	OFFICE	716
211	1OFFICE W/CARPET	OFFICE	171
212	1OFFICE W/CARPET	OFFICE	171
214	STOREROOM SPACE	MATH DEPT STORAGE	149
215	1OFFICE W/CARPET	OFFICE	384
216	2OFFICE W/HARD FLOOR	OFFICE	107
218	1OFFICE W/CARPET	OFFICE	150
219	1OFFICE W/CARPET	OFFICE	192
220	STOREROOM SPACE	SCIENCE DEPT STORAGE	150
221	2OFFICE W/HARD FLOOR	OFFICE	171
225	2OFFICE W/HARD FLOOR	OFFICE	171
229	2OFFICE W/HARD FLOOR	OFFICE	192
231	1OFFICE W/CARPET	OFFICE	107
232	1PUBLIC (CIRCULATION) W/HARD FLOOR	SOUTH HALLWAY	338
232A/B/C	STOREROOM SPACE	MATH DEPT STORAGE	192
234	1OFFICE W/CARPET	OFFICE	170
236	1OFFICE W/CARPET	OFFICE	88
238	1OFFICE W/CARPET	OFFICE	88
240	2OFFICE W/HARD FLOOR	SECRETARY OFFICE	88
242	1OFFICE W/CARPET	TEACHER OFFICE	88
244	2OFFICE W/HARD FLOOR	MAINTENANCE OFFICE	88

Detailed Site Space Inventory

Figure 11 Barton Hall Space Inventory (continued)

Room #	APPA Space Category	Designated Use	Square Feet
248	1OFFICE W/CARPET	OFFICE	88
249	1OFFICE W/CARPET	OFFICE	300
250	1OFFICE W/CARPET	OFFICE	88
251	1OFFICE W/CARPET	SCIENCE DEPT CONFERENCE	278
252	1OFFICE W/CARPET	OFFICE	88
253	1OFFICE W/CARPET	OFFICE	192
254	1OFFICE W/CARPET	OFFICE	88
256	1OFFICE W/CARPET	RECEPTION AREA	256
257	1OFFICE W/CARPET	TEACHER OFFICE	88
258	1OFFICE W/CARPET	OFFICE	88
259	2OFFICE W/HARD FLOOR	CUSTODIAL OFFICE	88
261	1OFFICE W/CARPET	TEACHER OFFICE	88
263	2OFFICE W/HARD FLOOR	SECRETARY OFFICE	88
265	1OFFICE W/CARPET	HEAD SECRETARY OFFICE	88
269	1OFFICE W/CARPET	OFFICE	88
271	1OFFICE W/CARPET	OFFICE	88
273	1OFFICE W/CARPET	OFFICE	88
275	1OFFICE W/CARPET	OFFICE	96
276	1OFFICE W/CARPET	OFFICE	150
281	1CLASSROOM W/HARD FLOOR	SCIENCE CLASSROOM	896
283	1OFFICE W/CARPET	OFFICE	284
284/A/B/C/	1OFFICE W/CARPET	FACULTY OFFICES	1384
285/285A	1CLASSROOM W/HARD FLOOR	TEACHING LAB	1090
285B	1RESEARCH LAB WITHOUT HAZARDOUS WASTE	RESEARCH LAB	88
286/286A	1OFFICE W/CARPET	OFFICE	270
288/A/B/C/	1OFFICE W/CARPET	FACULTY OFFICES	904
289	1OFFICE W/CARPET	OFFICE	214
290	1OFFICE W/CARPET	OFFICE	88
292	1OFFICE W/CARPET	OFFICE	88
294	1OFFICE W/CARPET	OFFICE	88
295	STOREROOM SPACE	CUSTODIAL CLOSET	90
297	1WASHROOM	MEN'S LAVATORY	192
299/299A	1WASHROOM	WOMEN'S LAVATORY	320
Subtotal of floor 2 of Barton Hall:			17,804
Total for Barton Hall:			36,523

Figure 11 Barton Hall Space Inventory (continued)

FTE (Full Time Equivalent Personnel) Staff Requirements for Vacation, Sick Leave, and Other Types of Leave

The previous section presented the recommended method for establishing staff requirements for cleaning tasks only. Typically, there are a number of non-cleaning time demands that necessitate added staff requirements. First, there are always a number of contractually allowed reasons that a given staff member will not be available for work on a given day. As a general rule, APPA does not recommend temporarily assigning two or more areas to a present employee as a means of covering absences except in the most extreme emergency. When this is done, the actual cleaning activities to be accomplished should be carefully defined and planned in advance. If this operational mode is commonly used, peaks and valleys in building appearance will result.

Figure 12 Barton Hall Staffing Summary

APPA Space Category	Total Cleanable sq. ft.	LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4		LEVEL 5	
		Sq. ft. per custodian	# cust.	Sq. ft. per custodian	# cust.	Sq. ft. per custodian	# cust.	Sq. ft. per custodian	# cust.	Sq. ft. per custodian	# cust.
Office w/carpet	17,317	9,555	1.81	18,208	0.95	32,041	0.53	53,109	0.33	87,047	0.20
Public w/hard	7,851	7,500	1.05	20,502	0.38	30,514	0.26	38,431	0.20	41,761	0.19
Entryway	312	4,312	0.07	7,455	0.04	12,272	0.03	20,688	0.02	434,925	0.01
Res. lab no hzd.	1,643	8,836	0.19	16,200	0.10	24,257	0.07	42,000	0.04	203,104	0.01
Storeroom	2,048	76,654	0.02	207,835	0.01	387,692	—	1,550,769	—	3,360,000	—
Washroom	1,092	1,965	0.56	2,571	0.42	2,571	0.42	2,571	0.42	2,571	0.42
Stairwell	468	7,538	0.06	15,088	0.03	17,472	0.03	24,539	0.02	75,310	0.01
Classroom w/hard floor	5,800	8,554	0.68	16,705	0.35	26,512	0.22	39,468	0.15	45,652	0.13
Totals	35,531		4.44		2.28		1.56		1.18		0.97

The FTE needs for these circumstances are fairly easy to calculate, since most of these types of records are maintained by the Personnel or Human Resources department. A fairly accurate first cut can be based upon the statistical records from the previous year. Any anomalies should be fairly easy to identify. One FTE is typically considered to be (40 hours per week x 52 weeks) 2,080 hours per year.

Example 2

You have calculated your staffing requirements for cleaning at 43 FTE. Your Human Resources people advise you that your "average" employee is eligible for and uses 15 days of annual leave, eight days of sick leave, two days of personal leave, and 1.6 days of some type of other leave, including Workers Compensation or unpaid leave, per year. How many additional FTE do you need to cover these circumstances?

- ✦ In addition to the 10 holidays already accounted for in the calculation method, each worker does not work $15 + 8 + 2 + 1.6 = 26.6$ (8 hour) days per year, or 212.8 hours per year. 43 workers will generate a requirement for $43 \times 212.8 = 9,150$ hours per year. To cover that number of hours, you will require $9,150 / 2,080 = 4.4$, or about 4.5 FTE.

One common way of providing for these needs is to augment a project team, such as a floor care group, with additional FTE to cover absences. As needs for replacement workers increase, floor project work will slow down. But on an annual basis it will balance. Another way is to have a pool of ad hoc cleaning people on call. Also, some work can be scheduled on an over-time basis. Vacations can be scheduled so that variations of worker availability are minimized and "extras" or "floaters" can substitute. Arguments can be made for all methods, or a combination thereof.

FTE Staff Requirements for Non-Cleaning Assignments

Sometimes the number of different types of work assignments, other than cleaning, that are actually expected of the custodial staff really appears astounding. One institution prided itself on the good service the cleaning staff provided for the immediate needs of the educational staff. In order to fulfill the expectations, the custodial supervisor actually kept several workers sitting on a bench in his office ready to go on a call. Although this case was a bit unusual, cleaning service workers are expected to lock/unlock doors, perform set-ups, travel, fill out building discrepancy reports, and answer pagers for emergency service. You probably have several more that could be added to the list.

If this work is a portion of a custodian's daily responsibilities, the specific quantity of each kind must be identified and a time allowance built into the schedule to perform that work. Data can be collected with time cards over a period of time. The staff FTE to perform these tasks can be calculated the same as in the previous section. We will give an example of how the work can

be built into individual assignments in the next chapter. If some personnel have no cleaning activities assigned, they should not be categorized with cleaning personnel. By identifying and isolating the non-cleaning responsibilities of the staff you can, with these methods, evaluate the total number of staff required for each category—cleaning and non-cleaning.

Total FTE Staff Requirements, Cleaning and Non-Cleaning Activities

Given the knowledge of your resources and by applying the techniques presented in this chapter, you will be able to determine the optimal frequency and cleaning level for your institution. Frequency will determine the FTE requirement for cleaning only. Combining this number with the staff requirement for non-cleaning duties and leave will give the total number of staff needed to complete the tasks you have identified. The results of identifying non-cleaning duties are often surprising. These results can be used to negotiate exactly what services and frequencies your staff can provide, and the results can also help you to justify additional staff. When staff reductions are required, the results can be used to identify which services and frequencies can be reduced.

Often institutions are surprised with the results. The numbers, however, are difficult to refute when the requirements are presented in an organized, logical, and supportable manner. These results can be used to negotiate, if necessary, exactly what services and their associated frequencies your staff can provide and, if inadequate, justify added staff. On the other hand, the results can be used to identify exactly what services could be reduced if staff reductions are required.

Custodial Areas and Scheduling— The Micro Staffing Solution

Jack C. Dudley

FTE Staff Requirements and Minutes to Clean

In the previous chapter, a global staffing requirement was established for Barton Hall. As discussed, this requirement would typically be used for arriving at an institutional consensus on exactly what activities the cleaning personnel would be required to do, how often they would perform them, and how many personnel would be required.

These methods also lend themselves to creating balanced cleaning routes and specific personnel assignments. If you recall Example 2 in Chapter 1, we determined the number of FTE needed to clean one specific room by dividing the room's area (CSF) by the assignable square feet per custodian for that standard APPA space type at the chosen cleaning level. Since the matrices are based on the premise that 420 minutes represent one day of productive cleaning, **420 minutes is the equivalent of an FTE, or full-time employee.** Therefore, that fraction of an FTE times 420 will equal the number of minutes needed to perform the required cleaning activities in that space.

Example 1

Room 101A in Barton Hall is "Treated Like" an APPA Standard Office with Carpet. The assignment is to determine what portion of an FTE will be required to service it at Cleaning Level 2 and how many minutes should be set aside to perform "routine" cleaning activities?

- ⊕ From Matrix #4, Appendix D, one cleaning person can be assigned 22,232 CSF of this type of space for **routine** cleaning activities. Since this room is 150 CSF, $150/22,232 = 0.00675$ FTE. Since one FTE has 420 productive minutes, $420 \times 0.00675 = 2.83$ minutes to clean.

Defining Routine Cleaning Activities

Generally, custodial managers identify those cleaning activities that are performed once a week or more often as routine. Typical assignment sheets given to custodians will identify required cleaning activities in each space type and the frequency each activity is performed. The custodian's time must be budgeted so as to make the weekly requirement come out right by adjusting his or her daily routine. Some managers define cleaning activities per-

formed on a daily basis as routine, and the remaining activities as project work. Since the calculation method is the same, we'll use the weekly technique as the example, since it takes less work.

Using Barton Hall as the example, carefully review each standard APPA space category contained therein for the frequency you intend to perform each and every task. For this example, assume that all activity frequencies in the space categories are okay at Level 2, except that you want to damp-mop all hard floor classrooms once a week rather than once a month. You would then have to change the standard space matrix #1 to that shown in Figure 13 with the methods used in Chapter 2.

Go through the exercise yourself. Notice that the CSF assigned per custodian for routine work decreased by more than 2,500 CSF, or more than two classrooms per shift! Quite a difference. Also, note in Figure 13 the Adjusted Minutes (Frequency Code x Base Time), the Adjusted Minute Subtotals and Total, and the CSF per Custodian (Daily Productive Minutes x Cleanable Square Feet / Adjusted Minutes) are all calculated values. Using the computer methods, results of changes can be rapidly evaluated.

Figures 14 and 15 are Minutes-to-Clean reports for Barton Hall, which were created using spreadsheet software. In these figures we have calculated both routine and project work. Routine FTE are the CSF of the given space divided by the assignable CSF/Custodian for that type of space. The Minutes to Clean are FTE times 420. Since the only total for project activity times is the adjusted minutes, the Project Minutes to Clean is the area ratio of the space being calculated and the standard space times the adjusted minutes. The Project FTE is the Minutes to Clean divided by 420.

Example 2

Room 103A of Barton Hall is a standard APPA space of Carpeted Office and contains 375 CSF. How many routine and project FTE are required to clean the space and what are the routine and project minutes to clean for that space?

- ✦ The routine CSF/Custodian are 22,232 CSF, so Routine FTE are $375 / 22,232 = 0.017$.
- ✦ The routine Minutes to Clean are $420 \times 0.017 = 7.14$ minutes (Note the rounding error).
- ✦ The project adjusted minutes are 5.00 and the "standard space" is 1,200 CSF. The project Minutes to Clean for 103A are $(375 / 1,200) \times 5.00 = 1.56$.
- ✦ The project FTE are $1.56 / 420 = 0.004$.

Note that the Minutes to Clean are really only the Adjusted Minutes proportioned for area. The totals for floor 1 and floor 2 FTE, project and routine work are $1.104 + 0.158 + 0.963 + 0.158 = 2.38$ FTE. In Figure 12, the macro staffing calculation, the total at Level 2 is 2.28 FTE. The difference is the change from damp-mopping classrooms with hard floors from once a month to once a week.

Figure 13 Classroom with Hard Floors, Special Matrix

Routine Activities	Your Frequency	Your Freq. Code	Adjusted Minutes	Base Time
Spot Clean Walls & Doors	Weekly	0.200	0.78	3.90
Relamp	D/A		0.09	3.91
Clean Chalkboards & Trays	Daily	1.000	4.20	4.20
Dust Flat Surfaces	Weekly	0.200	1.10	5.50
Empty Waste Containers	Daily	1.000	0.70	0.70
Empty Pencil Sharpeners	Daily	1.000	0.60	0.60
Sweep/Dust-mop Floors	Daily	1.000	16.40	16.40
Clean Erasers	Daily	1.000	0.60	0.60
Damp-mop Floors	Weekly	0.200	3.42	17.10
Adjusted Minute Subtotal			27.89	
CSF/Custodian			18,071	
Project Activities	Your Frequency	Your Freq. Code	Adjusted Minutes	Base Time
Dust Blinds	Annually	0.004	0.03	6.30
Project-Clean Furniture & Seating	Annually	0.004	0.49	122.00
Clean Trash Containers	Semiannually	0.008	0.01	1.40
Dust Vents	Quarterly	0.016	0.02	1.50
Interim Floor Care	Quarterly	0.016	1.76	109.70
Strip/Refinish Floors	Annually	0.004	0.83	208.30
Clean Windows	Annually	0.004	0.06	15.10
Project-Clean Light Fixtures	Annually	0.004	0.78	195.40
Spray-Buff/Burnish Floors	Monthly	0.048	0.90	18.70
Adjusted Minute Subtotal			4.88	
Total Adjusted Minutes			32.77	
CSF/Custodian			15,382	
Daily Productive Minutes	420			
Cleanable Square Feet of Space	1,200			

The number we will use to create balanced cleaning schedules is the room routine minutes to clean. This number is also a reality check on the entire mathematical process. An experienced supervisor can quickly look at a space and quite accurately estimate the time to set aside to clean a space, so any assumption errors can be isolated by inspection.

Project Work Time Set-Aside

The Minutes-To-Clean reports, Figures 14 and 15, identifies a requirement of 0.315 FTE (0.157 + 0.158) for project work. Since each FTE is 250

Figure 14 Minutes to Clean for Barton Hall, First Floor

Room #	CSF	APPA Space Cat	Routine CSF/Cust	Routine FTE	Routine MTC	Project Adj Mins	Std Spc Area	Project MTC	Project FTE
101A	150	OFF W/CPT	22,232	0.007	2.83	5.00	1,200	0.63	0.001
101B	150	OFF W/CPT	22,232	0.007	2.83	5.00	1,200	0.63	0.001
101C	150	OFF W/CPT	22,232	0.007	2.83	5.00	1,200	0.63	0.001
101D	225	OFF W/CPT	22,232	0.010	4.25	5.00	1,200	0.94	0.002
101E	150	OFF W/CPT	22,232	0.007	2.83	5.00	1,200	0.63	0.001
103A	375	OFF W/CPT	22,232	0.017	7.08	5.00	1,200	1.56	0.004
103B	150	OFF W/CPT	22,232	0.007	2.83	5.00	1,200	0.63	0.001
103C	150	OFF W/CPT	22,232	0.007	2.83	5.00	1,200	0.63	0.001
103D	150	OFF W/CPT	22,232	0.007	2.83	5.00	1,200	0.63	0.001
103E	150	OFF W/CPT	22,232	0.007	2.83	5.00	1,200	0.63	0.001
103F	150	OFF W/CPT	22,232	0.007	2.83	5.00	1,200	0.63	0.001
103G	263	OFF W/CPT	22,232	0.012	4.97	5.00	1,200	1.10	0.003
101	525	PUB W/HARD FL	23,605	0.022	9.34	3.76	1,400	1.41	0.003
103	825	PUB W/HARD FL	23,605	0.035	14.68	3.76	1,400	2.22	0.005
100K	788	PUB W/HARD FL	23,605	0.033	14.02	3.76	1,400	2.12	0.005
100J&A	312	ENTRYWAY	7,801	0.040	16.80	0.58	232	0.78	0.002
102	531	OFF W/CPT	22,232	0.024	10.03	5.00	1,200	2.21	0.005
104	280	RES LB-NO HZD	11,792	0.024	9.97	1.31	324	1.13	0.003
106	280	RES LB-NO HZD	11,792	0.024	9.97	1.31	324	1.13	0.003
105	120	RES LB-NO HZD	11,792	0.010	4.27	1.31	324	0.49	0.001
108	140	RES LB-NO HZD	11,792	0.012	4.99	1.31	324	0.57	0.001
110/110A	188	RES LB-NO HZD	11,792	0.016	6.70	1.31	324	0.76	0.002
107	98	RES LB-NO HZD	11,792	0.008	3.49	1.31	324	0.40	0.001
109	90	RES LB-NO HZD	11,792	0.008	3.21	1.31	324	0.36	0.001
132/A/B	390	STOREROOM	1,000,000	0.000	0.16	0.96	480	0.78	0.002
100H	80	OFF W/CPT	22,232	0.004	1.51	5.00	1,200	0.33	0.001
100R	1,150	PUB W/HARD FL	23,605	0.049	20.46	3.76	1,400	3.09	0.007
100M	75	PUB W/HARD FL	23,605	0.003	1.33	3.76	1,400	0.20	0.000
195	100	STOREROOM	1,000,000	0.000	0.04	0.96	480	0.20	0.000
197	180	WASHROOM	2,592	0.069	29.17	0.38	282	0.24	0.001
199/A	300	WASHROOM	2,592	0.116	48.61	0.38	282	0.40	0.001
100N	625	PUB W/HARD FL	23,605	0.026	11.12	3.76	1,400	1.68	0.004
111	125	OFF W/CPT	22,232	0.006	2.36	5.00	1,200	0.52	0.001
113	113	OFF W/CPT	22,232	0.005	2.13	5.00	1,200	0.47	0.001
115	113	OFF W/CPT	22,232	0.005	2.13	5.00	1,200	0.47	0.001
117	113	OFF W/CPT	22,232	0.005	2.13	5.00	1,200	0.47	0.001
119	90	OFF W/CPT	22,232	0.004	1.70	5.00	1,200	0.38	0.001
112	50	WASHROOM	2,592	0.019	8.10	0.38	282	0.07	0.000
181A	203	RES LB-NO HZD	11,792	0.017	7.23	1.31	324	0.82	0.002
181/B	550	CLS W/HARD FL	18,071	0.030	12.78	4.88	1,200	2.24	0.005

Room #	CSF	APPA Space Cat	Routine CSF/Cust	Routine FTE	Routine MTC	Project Adj Mins	Std Spc Area	Project MTC	Project FTE
118	100	STOREROOM	1,000,000	0.000	0.04	0.96	480	0.20	0.000
116	50	STOREROOM	1,000,000	0.000	0.02	0.96	480	0.10	0.000
114	50	WASHROOM	2,592	0.019	8.10	0.38	282	0.07	0.000
120	156	RES LB-NO HZD	11,792	0.013	5.56	1.31	324	0.63	0.002
122	90	STOREROOM	1,000,000	0.000	0.04	0.96	480	0.18	0.000
121	110	OFF W/CPT	22,232	0.005	2.08	5.00	1,200	0.46	0.001
123	110	OFF W/CPT	22,232	0.005	2.08	5.00	1,200	0.46	0.001
125	110	OFF W/CPT	22,232	0.005	2.08	5.00	1,200	0.46	0.001
127	110	OFF W/CPT	22,232	0.005	2.08	5.00	1,200	0.46	0.001
129	150	STOREROOM	1,000,000	0.000	0.06	0.96	480	0.30	0.001
131	150	STOREROOM	1,000,000	0.000	0.06	0.96	480	0.30	0.001
128	110	OFF W/CPT	22,232	0.005	2.08	5.00	1,200	0.46	0.001
100C	113	STAIRWELL	18,430	0.006	2.58	1.05	208	0.57	0.001
100B	150	STAIRWELL	18,430	0.008	3.42	1.05	208	0.76	0.002
100P	431	PUB W/HARD FL	23,605	0.018	7.67	3.76	1,400	1.16	0.003
181D	576	CLS W/HARD FL	18,071	0.032	13.39	4.88	1,200	2.34	0.006
181E	576	CLS W/HARD FL	18,071	0.032	13.39	4.88	1,200	2.34	0.006
124	288	CLS W/HARD FL	18,071	0.016	6.69	4.88	1,200	1.17	0.003
126/A	144	STOREROOM	1,000,000	0.000	0.06	0.96	480	0.29	0.001
100Q	186	PUB W/HARD FL	23,605	0.008	3.31	3.76	1,400	0.50	0.001
180/A/B/C/D	816	OFF W/CPT	22,232	0.037	15.42	5.00	1,200	3.40	0.008
182	874	CLS W/HARD FL	18,071	0.048	20.31	4.88	1,200	3.55	0.008
186	672	CLS W/HARD FL	18,071	0.037	15.62	4.88	1,200	2.73	0.007
188/A/B/L/M	1,000	OFF W/CPT	22,232	0.045	18.89	5.00	1,200	4.17	0.010
188J/K/G/H	830	OFF W/CPT	22,232	0.037	15.68	5.00	1,200	3.46	0.008
188D/E/F	120	STOREROOM	1,000,000	0.000	0.05	0.96	480	0.24	0.001
TOTALS	18,719			1.098	461.01			65.90	0.157

working days per year, this translates to $0.315 \times 250 = 79$ days of project work needed in Barton Hall. It also could mean that there are a total of $(65.90 + 66.28) = 132.18$ minutes per day of project work requirements, or 2.2 hours per day, or 11 hours per week. If you are resource leveled, you would have about two full-time cleaners assigned to this building. It would seem reasonable that, given a ten-week summer recess, 100 worker-days would be available for the project work with only 79 days required. There would actually be fewer days required because some of the project work would have been done during other recess periods or as part of the regular work day due to the varying frequency requirements for the different types of project work. If you are not resource leveled, you would have approximately 2.4 FTE assigned to the building and set aside an average of 2.2 hours each day to perform project work.

Figure 15 Minutes to Clean for Barton Hall, Second Floor

Room #	CSF	APPA Space Cat	Routine CSF/Cust	Routine FTE	Routine MTC	Project Adj Mins	Std Spc Area	Project MTC	Project FTE
200A	205	STAIRWELL	18,430	0.011	4.67	1.05	208	1.03	0.002
200J	273	PUB W/HARD FLO	23,605	0.012	4.86	3.76	1,400	0.73	0.002
201/A/B/C	1,136	OFF W/CARPET	22,232	0.051	21.46	5.00	1,200	4.73	0.011
202	561	OFF W/CARPET	22,232	0.025	10.60	5.00	1,200	2.34	0.006
208	173	STOREROOM	1,000,000	0.000	0.07	0.96	480	0.35	0.001
203	171	OFF W/CARPET	22,232	0.008	3.23	5.00	1,200	0.71	0.002
205	96	OFF W/CARPET	22,232	0.004	1.81	5.00	1,200	0.40	0.001
207	171	OFF W/CARPET	22,232	0.008	3.23	5.00	1,200	0.71	0.002
211	171	OFF W/CARPET	22,232	0.008	3.23	5.00	1,200	0.71	0.002
215	384	OFF W/CARPET	22,232	0.017	7.25	5.00	1,200	1.60	0.004
219	192	OFF W/CARPET	22,232	0.009	3.63	5.00	1,200	0.80	0.002
221	171	OFF W/CARPET	22,232	0.008	3.23	5.00	1,200	0.71	0.002
225	171	OFF W/CARPET	22,232	0.008	3.23	5.00	1,200	0.71	0.002
229	192	OFF W/CARPET	22,232	0.009	3.63	5.00	1,200	0.80	0.002
200K	286	PUB W/HARD FLO	23,605	0.012	5.09	3.76	1,400	0.77	0.002
214	149	STOREROOM	1,000,000	0.000	0.06	0.96	480	0.30	0.001
216	107	OFF W/CARPET	22,232	0.005	2.02	5.00	1,200	0.45	0.001
218	150	OFF W/CARPET	22,232	0.007	2.83	5.00	1,200	0.63	0.001
231	107	OFF W/CARPET	22,232	0.005	2.02	5.00	1,200	0.45	0.001
212	171	OFF W/CARPET	22,232	0.008	3.23	5.00	1,200	0.71	0.002
220	150	STOREROOM	1,000,000	0.000	0.06	0.96	480	0.30	0.001
210/245	716	OFF W/CARPET	22,232	0.032	13.53	5.00	1,200	2.98	0.007
249	300	OFF W/CARPET	22,232	0.013	5.67	5.00	1,200	1.25	0.003
251	278	CLS W/HARD FL	18,071	0.015	6.46	4.88	1,200	1.13	0.003
253	192	OFF W/CARPET	22,232	0.009	3.63	5.00	1,200	0.80	0.002
232	338	PUB W/HARD FLO	23,605	0.014	6.01	3.76	1,400	0.91	0.002
232A/B/C	192	STOREROOM	1,000,000	0.000	0.08	0.96	480	0.38	0.001
200L	478	PUB W/HARD FLO	23,605	0.020	8.50	3.76	1,400	1.28	0.003
295	90	STOREROOM	1,000,000	0.000	0.04	0.96	480	0.18	0.000
200R	427	PUB W/HARD FLO	23,605	0.018	7.60	3.76	1,400	1.15	0.003
200Q	282	PUB W/HARD FLO	23,605	0.012	5.02	3.76	1,400	0.76	0.002
200P	154	PUB W/HARD FLO	23,605	0.007	2.74	3.76	1,400	0.41	0.001
200M	427	PUB W/HARD FLO	23,605	0.018	7.60	3.76	1,400	1.15	0.003
297	192	WASHROOM	2,592	0.074	31.11	0.38	282	0.26	0.001
299/A	320	WASHROOM	2,592	0.123	51.85	0.38	282	0.43	0.001
256	256	OFF W/CARPET	22,232	0.012	4.84	5.00	1,200	1.07	0.003
234	170	OFF W/CARPET	22,232	0.008	3.21	5.00	1,200	0.71	0.002
236	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
238	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
240	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001

Room #	CSF	APPA Space Cat	Routine CSF/Cust	Routine FTE	Routine MTC	Project Adj Mins	Std Spc Area	Project MTC	Project FTE
242	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
244	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
257	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
259	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
261	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
263	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
265	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
248	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
250	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
252	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
254	96	OFF W/CARPET	22,232	0.004	1.81	5.00	1,200	0.40	0.001
269	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
271	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
273	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
275	96	OFF W/CARPET	22,232	0.004	1.81	5.00	1,200	0.40	0.001
258	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
289	214	OFF W/CARPET	22,232	0.010	4.04	5.00	1,200	0.89	0.002
281	896	CLS W/HARD FL	18,071	0.050	20.82	4.88	1,200	3.64	0.009
276	150	OFF W/CARPET	22,232	0.007	2.83	5.00	1,200	0.63	0.001
283	284	OFF W/CARPET	22,232	0.013	5.37	5.00	1,200	1.18	0.003
285/A	1,090	CLS W/HARD FL	18,071	0.060	25.33	4.88	1,200	4.43	0.011
294	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
292	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
290	88	OFF W/CARPET	22,232	0.004	1.66	5.00	1,200	0.37	0.001
285B	88	RES LB-NO HZD	11,792	0.007	3.13	1.31	324	0.36	0.001
200N	581	PUB W/HARD FLO	23,605	0.025	10.34	3.76	1,400	1.56	0.004
284/A/B/C/D	1,000	OFF W/CARPET	22,232	0.045	18.89	5.00	1,200	4.17	0.010
284E/F	384	OFF W/CARPET	22,232	0.017	7.25	5.00	1,200	1.60	0.004
286/A	270	OFF W/CARPET	22,232	0.012	5.10	5.00	1,200	1.13	0.003
288/A/B/C/D	904	OFF W/CARPET	22,232	0.041	17.08	5.00	1,200	3.77	0.009
TOTALS	17,812			0.963	404.41			66.28	0.158

Project Work Times

In each matrix, under Project Activities, the adjusted minutes are the daily "set aside" times to accomplish cleaning tasks that are not performed on a daily basis. In the previous section we talked about setting aside time to do those jobs. Here we will determine the amount of time needed to do specific project tasks in specific areas. Matching up project work with the time set aside can be quite a challenge since there probably are as many unique circumstances as there are organizations. The following are general suggestions.

For example, the Project Minutes to Clean Public Hard Surface (Circulation Matrix 5) Areas includes a 1.1 minute daily time set-aside to perform the annual task of stripping and refinishing the floors. The base time is 276.90 minutes, the amount of time to perform that task in the standard area of 1,400 CSF. Since it is an annual task, $276.90 \text{ minutes} / 250 \text{ days} = 1.1$ "adjusted" minutes were assigned on a daily basis as a project task so the total amount of time will be available once a year. The total amount of time to perform this project and the others in public areas on the two floors of Barton Hall are calculated as follows:

Example 3

How much time should it take to strip and refinish the 788 CSF hallway # 100K in Barton Hall?

- ⊕ If it takes 276.90 minutes to perform stripping and refinishing in 1,400 CSF of Hard Surfaced Hallways, then $788 \times 276.90 / 1,400 = 155.86$ minutes to complete hallway floorwork for area 100K.

Figure 16 is a spreadsheet with calculations of this type for all project work in Public Areas with Hard Floor standard spaces in Barton Hall. You would then continue this exercise with each type of space in the building you are analyzing in order to get all project times to schedule. For "smaller" operations, say up to a million CSF, this is not an impossible task — it is time consuming, but not impossible. For larger operations, or those with limited computer expertise availability, there are commercial software applications on the market identified in the bibliography.

Creating the Weekly Schedule

The time for all activities required to be performed by the custodians must be accounted for, including the cleaning. We have given methods for evaluating the time to complete routine and project work. Other times, such as set-ups, locking and unlocking doors, etc., must be generated so as to incorporate them into the daily schedule. We suggested earlier that some could be generated through time cards. Also, an experienced person is usually a reliable source for an estimated time requirement.

Example 4

Develop work schedules for the two "resource leveled" workers in Barton Hall. There is monthly and quarterly project work, such as spray-buffing or vent dusting, that cannot wait until break times. This must be worked into the weekly schedule. Contractually, you are required to provide two 15-minute lunch breaks and a 15-minute wash-up time per worker. You are also required to provide the service of locking and unlocking various doors, and custodial staff are also responsible for certain conference set-ups. Your shifts are 8 hours, or 480 minutes per day. Although this exercise assumes a 7-hour or 420-productive-minute day, work schedules must account for *all* time.

- ✦ Referring to the routine Minutes-to-Clean reports, Figures 14 and 15, you observe that, at the task frequency identified, the sum of the first and second floor routine minutes to clean is $461 + 404 = 865$. You determine, by referring to all the project minutes to clean reports you have created that there are five hours per week of project work that must be accomplished similar to Figure 16, but for all space types. You estimate from past experience that the locking/unlocking time amounts to 30 minutes per day and that the set-ups average 40 minutes per day. Figure 17 is a suggested format for recording the time spent by workers.

Figure 16 Barton Hall, Public Area Project Times

Room #	CSF	APPA Space Cat	Clean Trsh C'nt Minutes	Int.Fl. Care Minutes	Dust Vents Minutes	Project Cln Light Fixtures Minutes	Strip/ Refinish Floors Minutes
101	525	PUB W/HARD FL	1.07	35.123	0.59	44.10	103.84
103	825	PUB W/HARD FL	1.68	55.193	0.93	69.30	163.17
100K	788	PUB W/HARD FL	1.60	52.717	0.88	66.19	155.86
100Q	186	PUB W/HARD FL	0.38	12.443	0.21	15.62	36.79
100P	431	PUB W/HARD FL	0.88	28.834	0.48	36.20	85.25
100N	625	PUB W/HARD FL	1.27	41.813	0.70	52.50	123.62
100M	75	PUB W/HARD FL	0.15	5.018	0.08	6.30	14.83
100R	1150	PUB W/HARD FL	2.34	76.935	1.29	96.60	227.45
200J	273	PUB W/HARD FL	0.56	18.264	0.31	22.93	54.00
200K	286	PUB W/HARD FL	0.58	19.133	0.32	24.02	56.57
232	338	PUB W/HARD FL	0.69	22.612	0.38	28.39	66.85
200L	478	PUB W/HARD FL	0.97	31.978	0.54	40.15	94.54
200R	427	PUB W/HARD FL	0.87	28.566	0.48	35.87	84.45
200Q	282	PUB W/HARD FL	0.57	18.866	0.32	23.69	55.78
200P	154	PUB W/HARD FL	0.31	10.303	0.17	12.94	30.46
200M	427	PUB W/HARD FL	0.87	28.566	0.48	35.87	84.45
200N	581	PUB W/HARD FL	1.18	38.869	0.65	48.80	114.91
TOTAL MINUTES			15.98	525.23	8.80	659.48	1,552.82
TOTAL HOURS			0.27	8.75	0.15	10.99	25.88

PROJ. ACTIVITY	BASE TIME
Clean Trash Cont.	2.85
Interim Floor Care	93.66
Dust Vents	1.57
Proj. Clean Light F	117.6
Strip/Refinish Floor	276.9

The most obvious conclusion from this exercise is that although you have 865 minutes of daily routine cleaning work to do, you have only 740 minutes of time available. You are $865 - 740 = 125$ minutes, or more than two hours short. If you have taken these requirements into account in the

Figure 17 Proposed Cleaning Assignments, Barton Hall

	ACTIVITY	AREA 1 MINUTES	AREA 2 MINUTES
1	LUNCH BREAKS	30	30
2	WASH-UP TIME	15	15
3	LOCK/UNLOCK DOORS		30
4	SET-UPS	20	20
5	PROJECT WORK	60	
6	ROUTINE CLEANING WORK	355	385
	TOTALS	480	480

macro staffing determination and you were staffed accordingly, then the labor is available somewhere in the organization and you would assign it accordingly. It could be in the form of a floor project crew, or some other specifically identifiable work assignment(s) that would then not be assigned to the two workers assigned to Barton Hall. If you do not have the staff to accomplish all those tasks, then you will have to eliminate something, change frequencies, or change priorities. Unfortunately, more often than not the frequency of performing cleaning activities is reduced and appearance of the building suffers. To evaluate the time saved by decreasing task frequencies, you would go back to the standard space matrices and evaluate which activities you would do less often. You would recalculate the adjusted minutes and, subsequently, the total minutes to clean. If you have the space inventory either in a spreadsheet, like Figures 14 and 15, or other software, a number of various options can be evaluated fairly quickly.

The Work Assignment

Once you have balanced the cleaning required with the labor available, you will create actual work assignments. Using a floor plan, such as Figures 9 and 10 in the previous chapter, you assign a given room or space to a worker and color or highlight that space on the floor plan to identify it. The routine minutes to clean will be tallied on a separate sheet and, when you reach the total available minutes for that worker, you stop adding work. Thought must be given to types of space and the specific cleaning requirements. For instance, it is desirable to keep cleaning areas cohesive to minimize travel time. However, by assigning a worker a specific task over a much larger area, such as vacuuming carpeted hallways, time savings with specialized equipment can sometimes more than offset the travel time. This is the basis of "team" cleaning, which is discussed in Chapter 15, Team or Specialized Cleaning.

Example 5

To get an initial evaluation of the time required for vacuuming floors and straightening furniture on the second floor offices in Barton Hall, you would calculate the absolute time for each space. How much time will it take to vacuum the floor and straighten furniture in room 201/A/B/C?

- ✦ That space, from the inventory, contains 1,136 CSF. The base time to perform that task in the standard 1,200 CSF carpeted office is 21.07 minutes. Therefore, $1,136 \times 21.07 / 1,200 = 19.9$ minutes.

Figure 18 is a spreadsheet with the Example 5 calculation for the second floor. The total for all vacuuming and furniture straightening is 189 minutes, or just over three hours. If you are considering making this a team cleaner's task, you will measure the actual time for a worker to perform that job in all offices to see if there is actually some time saved. The instruction sheet(s) given to each route worker will be a colored floor plan showing the required space assignments and that identify cleaning activities to be performed in each space type. This information can be taken from the final standard space matrix. You may also want to include room numbers.

Figure 18 Carpeted Office Floor Vacuuming Summary, Second Floor of Barton Hall

ROOM #	CSF	APPA Space Cat	Std. Space Size	Base Mins. To Vacuum Floor	Mins to Vacuum Floor in Space
201/A/B/C	1,136	OFF W/CARPET	1,200	21.07	19.9
202	561	OFF W/CARPET	1,200	21.07	9.9
203	171	OFF W/CARPET	1,200	21.07	3.0
205	96	OFF W/CARPET	1,200	21.07	1.7
207	171	OFF W/CARPET	1,200	21.07	3.0
211	171	OFF W/CARPET	1,200	21.07	3.0
215	384	OFF W/CARPET	1,200	21.07	6.7
219	192	OFF W/CARPET	1,200	21.07	3.4
221	171	OFF W/CARPET	1,200	21.07	3.0
225	171	OFF W/CARPET	1,200	21.07	3.0
229	192	OFF W/CARPET	1,200	21.07	3.4
216	107	OFF W/CARPET	1,200	21.07	1.9
218	150	OFF W/CARPET	1,200	21.07	2.6
231	107	OFF W/CARPET	1,200	21.07	1.9
212	171	OFF W/CARPET	1,200	21.07	3.0
210/245	716	OFF W/CARPET	1,200	21.07	12.6
249	300	OFF W/CARPET	1,200	21.07	5.3
253	192	OFF W/CARPET	1,200	21.07	3.4
256	256	OFF W/CARPET	1,200	21.07	4.5
234	170	OFF W/CARPET	1,200	21.07	3.0
236	88	OFF W/CARPET	1,200	21.07	1.5
238	88	OFF W/CARPET	1,200	21.07	1.5
240	88	OFF W/CARPET	1,200	21.07	1.5
242	88	OFF W/CARPET	1,200	21.07	1.5
244	88	OFF W/CARPET	1,200	21.07	1.5
257	88	OFF W/CARPET	1,200	21.07	1.5
259	88	OFF W/CARPET	1,200	21.07	1.5
261	88	OFF W/CARPET	1,200	21.07	1.5
263	88	OFF W/CARPET	1,200	21.07	1.5
265	88	OFF W/CARPET	1,200	21.07	1.5
248	88	OFF W/CARPET	1,200	21.07	1.5
250	88	OFF W/CARPET	1,200	21.07	1.5
252	88	OFF W/CARPET	1,200	21.07	1.5
254	96	OFF W/CARPET	1,200	21.07	1.7
269	88	OFF W/CARPET	1,200	21.07	1.5
271	88	OFF W/CARPET	1,200	21.07	1.5
273	88	OFF W/CARPET	1,200	21.07	1.5
275	96	OFF W/CARPET	1,200	21.07	1.7
258	88	OFF W/CARPET	1,200	21.07	1.5
289	214	OFF W/CARPET	1,200	21.07	3.8

ROOM #	CSF	APPA Space Cat	Std. Space Size	Base Mins. To Vacuum Floor	Mins to Vacuum Floor in Space
276	150	OFF W/CARPET	1,200	21.07	2.6
283	284	OFF W/CARPET	1,200	21.07	5.0
294	88	OFF W/CARPET	1,200	21.07	1.5
292	88	OFF W/CARPET	1,200	21.07	1.5
290	88	OFF W/CARPET	1,200	21.07	1.5
284/A/B/C/D	1,000	OFF W/CARPET	1,200	21.07	17.6
284E/F	384	OFF W/CARPET	1,200	21.07	6.7
286/A	270	OFF W/CARPET	1,200	21.07	4.7
288/A/B/C/D	904	OFF W/CARPET	1,200	21.07	15.9
TOTAL					188.63

The Cost of Cleaning

Jack C. Dudley

Annual Personnel, Supplies, and Capital Expenses

Once staffing requirements have been determined, costs associated with the cleaning operation can be evaluated. It should be noted that these methods for evaluation are just that—methods. The numbers used here are general, and if real accuracy is needed, actual data must be obtained and substituted for the values used in this chapter. If you are doing the exercise to obtain your operating budget, you would use your average pay rate, fringe benefits, material costs, etc. If you are justifying your costs, or want a comparison, you would use data that is in the process of being established and distributed through an institutional survey developed by the APPA Custodial Analysis Project Team.

One concern of the project team was the need to isolate cleaning costs so that comparisons to other operations could be valid. Components of cleaning costs are:

- **Personnel:** Can be calculated with the formula (Cleaning FTE) x (Average Hourly Rate) x (percent Fringe in decimal format) x (Hours per Year per FTE)
- **Consumable supplies:** Each organization usually has a monetary dividing line between what is a supply item and what is defined as capital. Including non-capital cleaning equipment as well as machinery repairs, a rough estimate typically used is 10 percent of the direct labor costs. More accurately, records should be kept and the cost of supplies determined historically. Reputable chemical suppliers can help you determine and verify cleaning supply requirements. Since cleaning supplies are a relatively small portion of the budget, the easiest to use and longest lasting products are the cheapest if they allow you to reduce labor requirements — unless you are in a prison system and the inmates do the work.
- **Capital equipment:** Based on capital equipment life, annual costs for equipment replacement should be determined and a schedule developed. Also, good managers should always be on the lookout for new equipment to add to the inventory that will increase efficiency. A portion of the budget should be allocated for this. The capital equipment budget will, like the supply budget, be small in relation to the personnel budget. It is therefore logical that managers select the most effective equipment in order to reduce

labor costs. They should also select the sturdiest and most reliable equipment to extend life and minimize repair costs. Standardization of equipment can also help minimize repair costs. Since the cleaning staff uses the equipment, repair costs will be minimized if the staff is involved in its selection and, once acquired, trained to properly use it.

- **Supervision, training, non-cleaning tasks, and other costs:** Although important, methods to determine these costs are detailed in the APPA Custodial Analysis Survey format and will not be treated in this text.

Example 1

Determine cleaning costs for each cleaning level in Barton Hall based on the staffing calculated for Figure 12. Assume your average wage rate is \$7.00, your Fringe Factor is 25 percent, supply expenses are 10 percent of direct labor, and capital cost allowance is 5 percent of direct labor.

- ✦ For this example, supply and capital budget numbers are expressed as a percent of direct labor. This is really only a convenience for this exercise and is not intended as a mandatory format. You would most likely use an empirical value based on the methods described at the beginning of this chapter. Often cleaning costs are compared on the basis of "dollars per square foot." In this example, that number can be arrived at by dividing the cleanable square feet of Barton Hall into the total dollar figure. Of course, that is a dollar per "net" square foot exclusive of supervision.

Figure 19 Costs to Clean Barton Hall

Cleaning Level	FTE	Direct Labor Costs	Supply Costs	Capital Costs	Total Costs
1	4.44	\$80,808	\$8,080	\$4,040	\$92,929
2	2.28	\$41,496	\$4,149	\$2,074	\$47,720
3	1.56	\$28,392	\$2,839	\$1,419	\$32,650
4	1.18	\$21,476	\$2,147	\$1,073	\$24,697
5	0.97	\$17,654	\$1,765	\$ 882	\$20,302

Average Wages	7.00	Dir Labor = FTE x Ave. Wages x Fringe x Hrs. per Year
Fringe Factor	1.25	Supply Costs = Direct Labor x Supply Cost Factor
Hours per Year	2,080.00	Capital Cost = Direct Labor x Capital Cost Factor
Supply Costs	0.10	Total Costs = Direct Labor + Supply Costs + Capital Costs
Capital Budget	0.05	

How Clean Are You? Determining Your Facility's Level of Cleanliness

Philip L. Brown

Now it is time to take an objective look at your facility. How clean is your facility? What is the appearance level of clean (according to the APPA guidelines)? To determine the level of cleanliness, you must identify staffing levels and the CSF per custodian. Using this method, assume that you have 400,000 square feet of office space covered by 47 custodians. Each custodian is cleaning approximately 8,500 square feet. Thus, according to the staffing matrix for offices, you are staffed at Level 1 (9,500 square feet per FTE). Now, you may be staffing at Level 1, but are you actually achieving Appearance Level 1 cleaning?

To establish your baseline cleanliness level, you may want to consider conducting audit procedures. Audits provide for:

1. Baseline cleanliness level (evaluates APPA level of clean)
2. Evaluate the results of modified procedures
3. Performance evaluations
4. Quality control

When conducting an assessment of your facility, you need to consider two significant issues: the number of square feet each custodian cleans compared to the APPA guidelines, and the level of quality of the cleaning service provided. The number of square feet covered by each custodian compared with the APPA guidelines has been discussed at length earlier in this book. All quality standards should be:

- **Observable:** If you cannot observe it, you will not be able to measure it.
- **Measurable:** A clearly defined measure needs to exist. You observed the performed task. Now a measure needs to be developed.
- **Consistent:** Once a cleaning standard is developed that you can observe and measure, it is important that the audited results remain consistent from observation to observation, even if it is observed by different people.
- **Realistic:** Now that you have observed and measured results, and determined the consistency among measures, it is important to be realistic. Human beings are complex, and capable of amazing performance levels. But no one can perform at unrealistic levels on a consistent basis.

Developing Audit Guidelines

Actually, the guidelines have already been developed and are presented as the Appearance Levels in Chapter 1, General Methods. The five levels are included below for your review. Develop a method to select rooms to audit and to record and compute the results in a logical manner. Include criteria for assessing quality standards as outlined in the previous paragraph.

Level 1—Orderly Spotlessness

Level 2—Ordinary Tidiness

Level 3—Casual Inattention

Level 4—Moderate Dinginess

Level 5—Unkempt Neglect

What to Audit

To ensure an accurate representation of the makeup of the area to be assessed, it is recommended that at least 10 percent of each space type be included and that the total square footage assessed be at least 10 percent of the total area cleaned. Also, when 10 percent of the given room type falls below five rooms it is recommended that all of them be assessed.

As with the determination for the number of staff needed, a space inventory is required. Using Barton Hall as an example, the needed data is presented in Figure 20. The 8,805 square feet for audit is hypothetical, since it

Figure 20 Hypothetical Assessment Worksheet for Barton Hall

Use of Space	Treat like	Total sq. ft.	No. of rooms by space type	No. of rooms by classification	10% (or min. for audit)	Square footage for audit
Office	Office	16,981	71	73	8	1,200
Circulation	Circulation	7,851	14	14	5	1,510
Entryway	Entry	312	1	1	1	312
Research lab	Research lab	1,643	9	9	5	780
Storage	Storeroom	1,858	10	12	5	925
Elevator	Office	80	1	—		
Rest. closet	Storeroom	190	2	—		
Washroom	Washroom	1,092	6	6	5	912
Stairwell	Stairwell	468	3	3	3	468
Conf. room	Classroom	566	2	—		
Reception	Office	256	1	—		
Teaching lab	Classroom	1,640	2	—		
Classroom	Classroom	3,594	5	9	5	2,698
Totals		36,531	127	127	37	8,805

would depend on the specific rooms you choose to audit. Logically, you would have selected them on a somewhat random basis to ensure that you had a representative sampling of the building. It has not been answered here whether all the space, such as storage space, is actually assigned to the custodians. If it were not, it would not be audited.

Time Averaged Weighting for Appearance Items

Looking at the numbers contained in each of the space type matrices for staffing can yield some interesting insights. For instance, consider the labor (time) to care for floors in classrooms. Please refer to Figure 21, which is an example of the computations taken from the Classroom Matrix 1, to determine the *Time Average* factor for floor care in classrooms. Note that only those tasks pertaining to floor care were taken from the Classroom matrix for this example. When you add all the adjusted minutes at all five staffing levels, the result is that 67 percent, or *two-thirds*, of the total custodial effort in classrooms is spent on floor care. This concept is what we consider Time Averaged Weighting for Appearance Items. The principle behind this concept is that we spend a greater amount of time performing floor care in a classroom than any other appearance item. Then, it also stands to reason that we spend only 33 percent of our labor (time) on each of the other ap-

Figure 21 Classroom Matrix with Floor Care Activities Isolated

Matrix 1: Classroom — Staffing Service Levels

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Sweep, dust-mop floors	D 16.4	D 16.4	A/D 8.2	A/D 8.2	A/D 8.2	16.4
Spray buff/burnish floor	W 3.74	M 0.90	Q 0.30	S/A 0.15		18.70
Damp-mop floors	D 17.10	M 0.82	M 0.82	S/A 0.14		17.10
Perform interim floor care	Q 1.76	Q 1.76				109.7
Strip/refinish floors	A 0.83	A 0.83	A 0.83	A 0.83		208.30
Adj. min	58.92	30.17	19.01	12.77	11.04	
CSF/Cust	8,554	16,795	26,512	39,468	45,652	
Sum of floor care minutes	39.83	20.71	10.15	9.32	8.20	
Percent of total	68%	69%	53%	73%	74%	
Average of floor care time for all 5 levels as a % to total.		67%				

pearance items combined, such as cleaning chalkboards, emptying the trash, taking care of light fixtures, and cleaning vertical and horizontal surfaces. Knowing this, if you want an area to "stand out" for a political or social event, where would you spend your time? On floors, of course.

This same rationale was used in developing time averaged weighting factors for groups of activities that can generally be audited in each space type. These activities were taken from the room type matrices and combined into logical sets we call "appearance items." Times for those groups of items were added over all five appearance levels and then averaged for each type of space. The public areas were combined with stairwells. The results of that activity are shown in Figure 22.

These *Time Averaged Weighting* factors place more importance on the appearance items that take more work time to achieve. They also tell an auditor which items should be looked at more closely. Some spaces have as many as six appearance items (classrooms, locker/changing rooms, and re-

Figure 22 Time Averaged Weighting for Appearance Items (Percent)

Appearance items	Class-rooms	Entryways and lobbies	Locker/changing rooms	Offices	Public area corridor stairwell	Research labs with hazardous waste	Research labs without hazardous waste	Store-rooms	Wash-rooms
Chalkboards and erasers	15								
Floors	67	52	42	55	80	29	68	89	13
Horizontal surfaces and ashtrays, telephones, furniture, and drinking fountains	8			12	9	3	6		
Lighting and light fixtures	2	1	1	3	3	1	1	6	1
Lockers and benches			9						
Outside walks and ramps (10')		9							
Showers and drains including shower floor			35						
Toilets, urinals, washbowls, soap dispensers, and drying fixtures						21			67
Trash containers and pencil sharpeners	4		3	23	5	45	22		3
Vertical surfaces; walls, doors, windows, vents, blinds, and partitions	4	26	10	7	3	1	3	5	16
Walk-off mats		12							
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%

search labs with hazardous waste containers), and others only three (store-rooms). In all cases, the sum of the *Timed Average Weighting* factors for all appearance items for a given space type will total 100 percent, since that factor represents the percentage of time spent on that group of activities.

Audit Instruments

Figure 23 is an instrument created for offices that includes the Appearance Items and Time Averaged Weighting factors from Figure 22. An auditor would use this form to evaluate the Appearance Factors of office spaces. We recommend one form per space, properly labeled with area identification, date, and evaluator's name.

Accurate results can be attained by auditing as little as 10 percent of each of the space types in a facility if selected on a random basis. We also recommend that only the common areas, such as classrooms, hallways, washrooms, entryways, and offices be evaluated, since most cleaning time is spent servicing them. The "weighting" factor is the average percent of effort that the cleaning staff should be expending on that particular group of appearance items as determined from the matrix Time Averaged Weighting for Appearance Items (Figure 22).

Figure 23 Blank Audit Instrument: Offices

Appearance Items	Weighting Factor	Appearance Level					Item row score (factor x level)
		1	2	3	4	5	
Floors	55						
Horizontal surfaces	12						
Lighting and light fixtures	3						
Trash containers and pencil sharpeners	23						
Vertical surfaces	7						
Total row score							
Level = row score ÷ 100							

Conducting an Audit

Working from the definitions for each Appearance Level presented in Chapter 1, General Methods, an auditor should look beyond any messy accumulation created since the last routine cleaning. One term given to this skill is that the auditor looks for "old dirt." The auditor should also be aware that the following terms contained under Appearance Items represent the following:

- "Horizontal Surfaces" include ashtrays, telephones, furniture, and drinking fountains.
- "Vertical Surfaces" include walls, doors, windows, mirrors, vents, blinds, and partitions.
- "Toilets" refers to all fixtures in the washroom including urinals, sinks, soap dispensers, and drying fixtures. Note that because of health concerns cleaning levels below 2.0 (numerically higher) are unsatisfactory in Washrooms, Locker Rooms, and Cafeterias.

As an example, suppose an auditor evaluates office space and finds the following:

Item	Level	Appearance
Floors	2	Clean, no edge or corner buildup, some stains
Horizontal surfaces	4	Conspicuous dust, dirt, and fingerprints
Lighting	3	Lamps lit, fixtures clean
Trash containers	2	Empty, clean, odor free
Vertical surfaces	4	Conspicuous dirt, marks difficult to remove

Figure 24 shows the appearance of the completed audit instrument. The individual raw scores are computed by multiplying the observed level and the weighting factor. The total raw score for this room is 241. Since weighting factors are percentages, the total raw score is divided by 100 and the Appearance level for this space is 2.41, or between Levels 2 and 3.

Washrooms and locker/changing rooms have only two acceptable Appearance Levels, 1 and 2. We recommend, however, that audit instruments developed for these areas make provisions to rate them throughout all levels, up to and including Appearance Level 5. If they do not meet Level 2 requirements, a lower rating should call immediate attention to the potential health hazard.

Figure 24 Completed Audit Instrument: Offices

Appearance Items	Weighting Factor	Appearance Level					Item raw score (factor x level)
		1	2	3	4	5	
Floors	55		X				110
Horizontal surfaces	12				X		48
Lighting and light fixtures	3			X			9
Trash containers and pencil sharpeners	23		X				46
Vertical surfaces	7				X		28
Total raw score							241
Level = raw score ÷ 100							2.41

Figure 25 depicts the results of a hypothetical audit conducted on Barton Hall. All that is necessary to complete your audit is to calculate the average audit for each space type. In this example assume that the average for all eight offices you audited equaled 2.41 (add the Appearance Level calculated for each of the 8 offices you audited and divide by 8). Complete this process for each space type reviewed. To calculate the overall Appearance Level for the facility, simply add the audit average for all space types and divide by the number of space types reviewed. In this example, the sum of the audit averages for all space types equals 21.90, dividing this number by the number of space types audited (in this case 8) determines that the overall Appearance Level of Barton Hall is 2.74, or between Appearance Levels 2 and 3. Note that the facilities overall Appearance Level may be simple averages, since the space types were weighted in the sampling exercise when you determined the number of rooms in each space type was necessary to audit for the facility.

Ten minutes would certainly be adequate time to perform an audit of an individual room. Extrapolating, the 37 rooms in Barton Hall should take 370 minutes, or less than a day, to evaluate almost 40,000 square feet. Extending this, five weeks should be more than sufficient time for one person to perform an audit on 1 million square feet. The definitions of Appearance Levels, Appearance Items, and Time Averaged Weighting Factors developed in this text are guidelines and are based on reasonable information. But, in order for them to become standards, they should be tailored to your campus facilities.

Figure 25 Hypothetical Audit Worksheet for Barton Hall

Use of space	Treat like	Total sq. ft.	No. of rooms by type	No. of rooms by classification	10% (or min. for audit)	Square footage for audit	Audit average for space type
Office	Office	16,981	71	73	8	1,200	2.41
Circulation	Circulation	7,851	14	14	5	1,510	2.37
Entryway	Entry	312	1	1	1	312	3.00
Research lab	Research lab	1,643	9	9	5	780	2.95
Storage	Storeroom	1,858	10	12	5	925	2.32
Elevator	Office	80	1	-			
Cust. closet	Storeroom	190	2	-			
Washroom	Washroom	1,092	6	6	5	912	2.25
Stairwell	Stairwell	468	3	3	3	468	3.12
Conf. room	Classroom	566	2	-			
Reception	Office	256	1	-			
Teaching lab	Classroom	1,640	2	-			
Classroom	Classroom	3,594	5	9	5	2,698	3.48
Totals		36,531	127	127	37	8,805	21.90
				Barton Hall overall appearance level			2.73

Does Your Level of Cleanliness Support Your Staffing Level?

When you have completed your audit you will be able to compare the actual Appearance Level at which you are maintaining your facilities to the staffing model that you completed. As an example, suppose you had staffed Barton Hall with two custodians with an expectation of achieving an Appearance Level 2, knowing that the Barton Hall staffing model indicated that you needed 2.28 custodians to achieve that level (refer to Barton Hall staffing model in Chapter 4, Figure 12). Following your audit of the Barton Hall facility as completed in Figure 13, you find that you are achieving an Appearance Level of 2.74. This indicates that you are not achieving the targeted Appearance Level 2.

Are you understaffed? Possibly, based on this example. The Barton Hall model indicated that you would need 2.27 custodians to achieve an Appearance Level 2. Remember that the staffing matrix is a guideline and that there are other reasons that may affect your ability to achieve the expected Appearance Level other than the number of staff you have at your facility. Some possible reasons are as follows:

1. You may find, in certain situations, that you have more staff than necessary based on the staffing matrix to achieve a desired Appearance Level. However, your audit indicates that you are just achieving the level of appearance you expect for your facility. Some reasons for this might be that your staff is not trained to be as efficient as possible. Maybe the equipment provided your staff is inadequate for the tasks assigned. Or, you may just have more staff than necessary, which will be apparent by observing significant amounts of idle time during work hours.
2. It is also possible that you have the necessary staffing to achieve a desired level of clean based on your model, but your facilities audit indicates that the Appearance Level is lower than expected (higher numerically). This could also indicate that your staff is not trained to be as efficient as possible, or you may not be providing adequate equipment for your staff to be efficient. You could possibly have a morale problem at your facility that affects productivity, as well.
3. It is not unusual to find that your staff is outproducing the APPA "norms" or, that with good training and equipment, you can achieve that operational state. This is because the "norms" were developed from averages.
4. Other reasons might be specific to your institution such as how densely your facilities are occupied. Climate may also play a significant role as well. Facilities that are in heavy snow belts may have a more difficult time in maintaining their facilities during the winter season than those that have little or no snow. Please see the discussion of these and other factors in Appendix A.

It is important to remember that your customer's perceptions may not match your own evaluations. This suggests that you may need to develop a

method to involve them in the assessment process and help improve their awareness. We recommend that you provide service procedures and/or cleaning frequencies to your customers. We also suggest that you visit with your customer frequently to obtain their input on the quality of services you provide. You may consider hiring a consultant to evaluate your operation. Another evaluation tool is to circulate survey forms to your customers and obtain their input.

Quality Controls

Any of the scenarios described above are potential reasons for not achieving a desired Appearance Level based solely on your staffing level. Audits of your facility are necessary to assess the quality of cleanliness in each area or to determine what Appearance Level currently exists. Audits are also recommended to be performed periodically as a means of ongoing quality control. Audits may also be tailored to serve as an employee evaluation tool to show each worker's progress on a month-to-month basis and help supervision communicate expectations to the employee. They may also be used as a tool in coaching employees and to reinforce positive results. Audit forms should always be reviewed with the employee responsible for the area audited.

Audits forms can also be utilized as a customer survey tool, allowing customers the ability to audit their space and provide input on the quality of housekeeping received. Decisions must be made as to whether to have one audit form for all areas, or multiple forms for each type of area. Should the form be a pass/fail or weighted? The answers to these questions should be tailored to each institution's individual need and preference. In all cases, consistency of the audits should be a high priority. A presentation of various audit formats for specific purposes are contained in Appendix F.

Contracting the Cleaning

Jack C. Dudley

Self-Operated or Contracted?

From time-to-time, in all operations, the concept of contracting cleaning services evokes interest in administrators. This appeal often surfaces when there are budget or labor problems. There are definitely circumstances when contract cleaning can be a cost-effective way of having the service of certain facilities performed. It is not, however, something to commit to without a substantial evaluation of the circumstances and careful development of contract documents.

All too often, an organization will move quickly, not realizing the full impact that contract cleaning will have on an operation. Managers new to the world of contract cleaning quickly notice how challenging it is to actually obtain the level of service intended in the contract. If the desired level of service is truly achieved, the organization is doing quite well. There is a tendency for numerous details to fall through the cracks of the contract language: extras, such as set-ups and other non-cleaning activities, are often picked up after the fact using expensive change orders to contract. Some of the factors that must be evaluated and addressed are:

- Specifically, what spaces are to be cleaned?
- Specifically, what cleaning tasks are the contractor to perform in each space type?
- Specifically, how frequently should the cleaning tasks be performed?
- Who is to provide the employees—the institution or the contractor?
- Who is to provide the cleaning supplies? The capital equipment? Are these elements adequate for the contract?
- How many cleaning personnel will be on site to perform the work? Are the proposed staffing levels adequate?
- How will the performance of the contract (cleaning) be evaluated? What are the consequences of poor or non-performance?
- What will the working hours be?
- How will security issues be addressed? Keys?
- How will contractors be qualified?
- How will extra work requested, that is not included in the contract, be obtained?

- Who provides first-line supervision (excluding management)?
- How will off-schedule, weekend, and/or after-hours work be obtained? Who will administer the contract?

There is an excellent chapter discussing the pros and cons of contracting for services, as well as types of contracts, in the APPA *Facilities Management* manual. Another valuable guide is *Contract Management or Self-Operation: A Decision-Making Guide for Higher Education*, also available from APPA.

Cost Comparisons Between In-House and Contracted Services

If you are using the APPA custodial staffing guidelines to model your cleaning operation, you will be in good position to determine whether or not contracting is best for one or more of your facilities. If you have an inventory of the space you clean and know what cleaning activities are performed in each type of space and how often they are performed, you already have the basis of the contract specifications. From there you can determine your labor costs using the methods in Chapter 6. Then, if there are other requirements that you want the contractor to perform—such as providing supervision, materials, capital equipment, etc.—you can cost out yourself and have a ready comparison when you receive a bid. The obvious key here is that the contract specifications must be in that same format and be extremely precise. It is not that the contractors are inherently dishonest; they are in competition with other bidders and must bid low to get the job. If they shave their costs too closely, the ensuing struggle to survive may manifest itself in reduced performance. This reduction will first show up in areas not covered specifically in the contract language. Only as a last resort will a desperate contractor openly violate a contract agreement.

During one of the initial custodial guidelines training seminars, a discussion about contracting came up. An attendee asked if there was a way to determine whether the facility was receiving true value from his cleaning contractor, since he thought his buildings were not clean enough. When asked what the contract specifications called for, he replied, "One worker per 15,000 square feet." This may seem simplistic, but the point is that you will probably get what you specify—which may or may not be what you want. In this case, the institution could only inspect or determine whether or not the contractor had the proper number of personnel on duty.

Of course, there are means other than the guidelines to evaluate your cleaning costs. APPA's biennial Comparative Costs and Staffing Report includes valuable data on custodial operations. Cleaning Management Institute also does an annual survey, with results expressed in dollars per square foot. As the APPA project team found, it is extremely difficult to isolate costs so that a valid comparison can be made. Therefore, managers must carefully evaluate survey data when distinguishing between your results and theirs.

Contracting Cleaning Specifications

Developing a comprehensive document to ensure your operation will get the contractor performance desired is not easy. Some typical sections of contract bid requests are:

- **Institutional Information:** Include pertinent information about the institution that would make a difference to a prospective bidder. This could include location of the buildings, size of the buildings, operational schedule, etc.
- **Instructions to Bidders:** This typically describes when, where, and how the bids will be received, and other requirements of the bidder such as performance bonds, insurance, inspection requirements, etc.
- **General Conditions of the Contract:** Beyond a general statement of what you want the contractor to provide, you should include what would appear to be a laundry list of any items your organization considers important to successful performance including hours of work, qualifications of workers and supervisors, who represents the contractor and owner, security requirements, definitions of cleaning methods, specific spaces the contractor is responsible for, etc. Building floor plans with areas identified is essential for this section. Who is responsible for providing equipment, supplies, and supervision? How will the contractor respond to problems and emergency calls, etc.? Be specific and thorough.
- **The Cleaning Schedule:** Identify *exactly* what cleaning activities are to be performed in each space type as well as the frequency of performance. Avoid using the term "as needed." Use terms that clearly define the cleaning activities and the frequencies. To accurately compare your in-house cleaning operation to a contractor, you must make sure that you are both providing the same service.
- **Data Sheets:** This is a form for each bidder to uniformly record, for the institution, specific information about the bidder demonstrating their ability to satisfactorily perform, who the company principals are, contact numbers and addresses, bank references, etc.
- **The Quotation Form:** Organized in such a fashion that you can accurately compare costs.

Once signed by both parties, the contract becomes a binding, legal document. As such, great care must be taken in its preparation. It will be very helpful to obtain examples of those contracts being successfully used in institutions similar to yours. Also, it is paramount to employ the services of an attorney experienced in contract law to review your material—and to prepare the contract if you do not feel confident. Once the contract has been awarded, the institution must have some method of inspection established to ensure compliance with the contract by the contractor. Even if the contractor is to provide supervision, you must have a way to assure yourself that you are getting what you specified.

Residence Halls

Julia Wertz

Workplace Setting

A fundamental difference between residence halls and other educational facilities is that the facility users, or "customers," in residence halls call their particular facility "home." As such, residence halls present specific challenges to the custodial scheduling process and the personnel involved. Typically, the custodial staff has the responsibility for cleaning the common or "shared" areas in a residence hall on a daily to weekly basis. Common areas include space such as hallways, lounges, utility rooms, group showers, and lavatories. In contrast, the individual student living areas are usually serviced only between semesters.

Even so, the custodians assigned to residence halls generally develop close personal bonds with many of the students. It is not unusual for custodians to know more about students' personal problems and habits than any other members of the campus staff. While this is positive, it can create problems if the custodians get too involved with the students. When this happens, a custodian's reassignment or disciplinary action against the custodian can become unusually complicated as students interject themselves into the supervisor-employee relationship. At the opposite end of the spectrum, problems may occur if the custodians and students do not get along. In these cases, the students can willfully create more work for the custodians with destructive, mess-producing behavior. All disagreements must be dealt with quickly in a manner that promotes mutual courtesy and respect between the staff and students involved.

Whether generated by a disagreement or not, residence halls inevitably become the locale for some extraordinary cleaning dilemmas. Policies intended to discourage destructive behavior must be carefully administered if a good staff-student relationship is to continue. For example, one factor that can foster disagreements with students is a requirement to charge students for extraordinary cleaning. Consideration must be given to the development and communication of a clear and fair method of billing students for providing cleaning that is not covered in their residential contracts. This communication would include party clean-up agreements and the cleaning specifications required by the institution.

Each residence hall has its own unique traffic flow of students and personnel. Custodial schedules must be adjusted accordingly. It is in the best interest of the custodial department to formulate the cleaning schedule in collaboration with the residential life staff. Once it is agreed upon, the cleaning schedule can be posted for reference for all those concerned. It also helps for each resident assistant to go over the schedule of cleaning with the students living in the area for which he or she is responsible. Incorporating comments and suggestions from the students on the best times to clean certain areas can encourage cooperation with the custodians. The task of cleaning a residence hall can be much more difficult without a good rapport between students, residential life staff, and facilities personnel. Timely communication between the different departments in coordinating projects can enhance productivity, and frustration levels can be reduced. The effort to provide an attractive, safe, and clean living environment for the students can proceed more effectively.

High Frequency Work

Student residence hall common areas are typically cleaned on a daily basis and are most often cleaned during the day shift. Around student sleeping quarters, noisy tasks such as vacuuming should be kept to a minimum and scheduled for later in the day. Weekend cleaning is often provided for residence halls in a scaled-down manner. It might consist of general policing in common areas, stocking paper supplies, and disinfecting bathrooms. Body fluid spills and other messes, which need immediate attention on weekends, are cleaned up when notification is made by students or residential life staff on a callout or as-needed basis.

One of the more sensitive areas of residence hall custodial care involves cleaning the bathrooms. The gender of the students using the bathroom may influence the gender of the custodians assigned to cleaning the bathroom. The procedures to enter a bathroom or restroom to clean should include: 1) knocking on the door and verbally announcing your presence, 2) propping the door open and posting "Restroom Being Cleaned" signs, and 3) blocking the door with the cleaning cart and placing "Wet Floor" signs when and/or where appropriate, once the custodian is inside the washroom.

Custodians cleaning lounges, vending spaces, elevators, washrooms, stairwells, and public corridors need to be aware of student activity in these areas and plan and schedule cleaning tasks accordingly. Custodial equipment and supplies should not be placed in areas where people can trip or fall over them. "Wet Floor" signs and any other safety notices need to be used liberally to protect the well-being of all.

Project Work

Periodic or academic breaks, when the students are gone, are the most effective times to do project work, such as stripping/refinishing floors and cleaning carpets. Key elements of the campus community should be notified of scheduled project work. This may help reduce the likelihood of a department, such as Admissions, taking people on grand tours over floors just refinished moments before.

Two of the most traumatic events in the yearly schedule of custodial services can come at the start and end of the school year. There are usually mountains of trash to deal with as students move in and out of residence halls. Plus, there is added pressure at commencement to turn the residence halls into show places, sometimes in as little as 24 hours after the students' departure. Extra temporary staff is often needed to meet the additional workload. Sources of temporary workers are students, contracted personnel, and reassigned employees from other campus operations. Of course, overtime is an option—possibly the only option.

Numerous custodial staff also have to integrate deep cleaning operations while providing custodial service for summer camps and conferences. Many of the youngsters attending these events are away from home for the first time. They often look forward, with glee, to trying out various pranks they have observed in viewing movies such as *National Lampoon's Animal House* and *Summer Vacation*. Putting foaming detergent and food coloring in the water fountains, lighting fireworks, shooting off fire extinguishers, smearing petroleum jelly and Vick's salve on the most unusual places, are a few of the character-building circumstances that custodians must endure. As summer conferences and camps are departing, the fall semester students begin arriving. Time is at a premium to accomplish all the tasks that need to be done. This underscores why cooperation in the scheduling of projects and communication between all departments are essential for accomplishment of maintenance goals.

Healthcare Facilities

Jim Adams

General Considerations

Virtually all educational environments have some sort of healthcare facility. It may be a wellness center where students go for simple illness and healthcare supplies and consultation, or a more sophisticated treatment and diagnostic facility where both treatment and simple procedures are performed. In some cases these health maintenance organizations or managed care facilities also have inpatient rooms for minor illness and observation or they could be an expanded hospital facility. Some institutions have treatment facilities that cater to the public, or a special type of facility such as a psychiatric treatment center with either or both an inpatient and outpatient operation. No matter which describes your situation, these facilities have special needs and considerations.

Regardless of how small or how sophisticated your healthcare facility is, one thing is certain: the level of cleaning will be much higher than for any other area on campus. The expectations of both the patients and staff is critical to the successful treatment and operation of the facility. The first impression of the patients will ease their anxiety, and the confidence of the staff will be strengthened by a neat and clean environment. The control of infection and the spread of virus requires that all chemicals are properly selected to control germs as well as clean.

When selecting your chemicals, be sure that they are right for the application. Select chemicals that have disinfectant and/or germicidal characteristics designed to kill microorganisms. Always use an EPA-registered (U.S. Environmental Protection Agency) product for specific microorganisms. You should always have special spill kits to clean up after blood or body fluids. This will also require special training of your staff in proper use and techniques for bloodborne pathogen control. In addition, the supplies and equipment must be frequently checked and cleaned to ensure that they do not provide a place for germs to hide. Storage areas and custodial closets must be kept as clean as the public and clinic space. If supplies are left out to become contaminated by germs, there is an increased risk that your custodial staff will spread these germs throughout the facility—a situation you need to avoid.

Staffing

Staffing of the healthcare facility is dependent upon the types of functions that occur and individual procedures. For the typical clinical environment, diagnostic and laboratory space, and patient treatment areas, you can establish the staffing using the normal APPA guidelines. There are several categories that easily apply to these spaces. Wherever you feel that the need for cleaning only has to meet one of the defined levels, the APPA guidelines will serve the purpose. You may find it necessary to have one individual always available for emergencies and unusual situations. This could be covered by allowing additional time within the defined guidelines of employee schedules. In other words, allow for flexible schedules.

The next consideration is inpatient areas. This could be patient rooms, wards, or continuous patient treatment space such as chemotherapy or dialysis space. Permanent assignment of staff to maintain the space should be considered. Within such space the occurrence of spills, cleaning up after meals, and the constant discharge and reassignment of beds require special discharge cleaning to prepare for new patients and the constant need for disinfection to keep down the spread of infection.

In most facilities the custodial staff is an extension of the Housekeeping Department. However, there is a trend to place these employees under the supervision of the nursing staff. This movement only strengthens the importance of cleaning and patient care. They go hand in hand and require that those employees are thoroughly trained, equipped, and blended into the team of other professionals providing for the care and treatment of patients.

Staffing is influenced by three factors: 1) the frequency of cleaning tasks, 2) the types of cleaning tasks, and 3) the time in which these tasks are to be performed. All three factors should be considered when using the guidelines in determining the staffing level. Frequency and types of tasks are easy to factor into the guidelines. The time can be more difficult.

Let's review hallway cleaning. If the work is performed during the day rather than the night, the area will be congested and heavily used. This will slow down and make it more difficult to complete the work. The same holds true for patient discharge cleaning. You cannot complete the task at night unless it is a private room, and even then the availability may dictate that it be done immediately. You will need to assess the needs of the facility and determine the best time to perform certain tasks to establish an informational stream and ensure that the information gets to the right people at the right time.

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)

Every healthcare facility will be governed by some outside authority. It may be a local and/or state commission, but your ability to provide services to the public will be overseen by someone. The purpose of the JCAHO is to im-

prove the quality of healthcare provided to the public. This organization works nationally and provides an inspection process and rating to give a clear understanding of where you stand among healthcare providers. This is accomplished by a detailed inspection of the facility. These inspections cover every aspect of healthcare, including the cleanliness.

The need to maintain the cleanliness of the facility for an inspection is obvious. The "not so obvious" is the necessary paperwork. You would expect that the cleanliness of the facility to be checked, but to support this, the JCAHO will also inspect such areas as training and equipment repair and maintenance, as well as compliance with all safety regulations (state, local, or federal) including OSHA regulations. You will need to have a training program for your staff and keep records for each employee. Maintain clear safety procedures and demonstrate that you audit their use in the workplace. The storage, distribution, and use of all chemicals will be of critical concern. Whenever chemicals are present in a patient environment, safe use and storage is a matter of good work practices. You should never spray chemicals above the head while patients are present, and all chemicals and supplies must be kept on the custodial cart at all times. The cart should be equipped with a locking cabinet and should never be left unattended. Custodians must be held accountable for their supplies and equipment at all times.

Additionally, the purchase, repair, and maintenance of equipment is of importance. The JCAHO inspection team will want to see that there are regularly scheduled inspections of equipment and that repair records for each piece of equipment are maintained. Inspections of custodial closets, equipment, and supplies can be quickly and easily completed with a simple form (see Figure 26, Custodial Closet Inspection Form). Those records, and the information concerning the repair of equipment, can be documented on another form where the history of the equipment is maintained (see Figure 27, Equipment Preventive Maintenance Form).

The inspectors will also quiz your custodial staff and observe their activities. They will ask your employees questions regarding their primary mission, and the proper use and dilution of chemicals and procedures for various cleaning situations. It is extremely important to provide complete training for all employees regularly, to ensure their thorough knowledge of their job. The team will inspect the custodial closets and the cleaning carts for such items as concentrate solutions and unmarked bottles. You will need to ensure that *all* supplies and equipment, right down to mops and buckets, are clean and functional. The JCAHO inspectors recognize that the services provided by the custodial staff are dependent upon having proper supplies and equipment in proper working order.

A detailed inspection booklet is published annually by the JCAHO which can be used to pretest yourself as a healthcare provider. The custodial items are not separated but incorporated with many sections, so you will need to acquaint yourself with each one and draw out the pertinent information you need.

CUSTODIAL SERVICES

CUSTODIAL CLOSET MONTHLY INSPECTION

IT IS THE RESPONSIBILITY OF EACH CUSTODIAN TO MAINTAIN HIS OR HER EQUIPMENT AND CLOSET IN A CLEAN, OPERATIONAL, AND WELL-MAINTAINED CONDITION AT ALL TIMES.

EMPLOYEE: _____ SUPERVISOR: _____ DATE: _____

CLOSET LOCATION: _____

DESCRIPTION	UNSAT	SATIF	GOOD	VERY GOOD
Closet: clean, organized and in order.				
Equipment upkeep: clean, working, and maintained.				
Chemicals: labeled and in correct containers.				
Sink: clean and clog free.				
Cart: clean, orderly, properly equipped and properly stocked.				
Misc: absence of personal items, cans, bottles, food, etc.				
Supplies: properly supplied and stored.				

Comments: _____

Employee Signature

Figure 26 Custodial Closet Inspection Form

Special Considerations

Patient rooms can take on several configurations and uses. In a psychiatric, abuse treatment, or caretaker facility, the rooms are daily living quarters and may need to be scheduled around daily activities. You and the healthcare staff need to determine what the impact of daily cleaning will have on the patients' activities before you determine how to get the work accomplished. In addition, there is discharge cleaning that will depend upon the availabil-

Figure 27 Equipment Preventive Maintenance Form

EQUIPMENT QUARTERLY PREVENTIVE MAINTENANCE

FACILITY _____

Equipment	Model #	Serial #	Asset #	Purchase date
	Date	Date	Date	Date
1. Plug				
Blades straight, firmly mounted, screws tight ?	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced
Does cord strain relief securely grip cord jacket ?	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced
Are all wires completely covered ?	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced
2. Cord				
Cord jacket free of cuts, cracks, exposed wires	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced
3. Strain Relief (Machine End)				
Complete, unbroken, in proper position	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced
Cord jacket free of breaks, cracks, cuts	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced
4. Switches				
All switches firmly mounted	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced
Switches operate with positive snap action	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced
Switches illuminate where required	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced	Yes No N/A Replaced
5. Operational Test				
With power on do all switches make good contact ?	Yes No	Yes No	Yes No	Yes No
Do all electrical functions operate normally?	Yes No	Yes No	Yes No	Yes No
6. Cleanliness				
Surface clean	Yes No	Yes No	Yes No	Yes No
Underside clean of excessive build-up	Yes No	Yes No	Yes No	Yes No
Filters and/or bags clean or replaced	Yes No	Yes No	Yes No	Yes No
7. Mechanical				
Handle tight	Yes No	Yes No	Yes No	Yes No
Screws and bolts tight	Yes No	Yes No	Yes No	Yes No
Wheels tight and functioning properly	Yes No	Yes No	Yes No	Yes No
Cam lock height adjustment firm	Yes No	Yes No	Yes No	Yes No
Drive block fits snugly on mount	Yes No	Yes No	Yes No	Yes No
Gear unit sounds normal	Yes No	Yes No	Yes No	Yes No
Bumpers in place and secure	Yes No	Yes No	Yes No	Yes No
Motor cooling vents open	Yes No	Yes No	Yes No	Yes No
Solution filter in place and intact	Yes No	Yes No	Yes No	Yes No
Unit free of any leaks	Yes No	Yes No	Yes No	Yes No

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ity of space for new patients. The custodial staff must be prepared to have cleaning activities accomplished to meet the need of new patients so that a minimum of waiting is experienced.

In a hospital or nursing home environment, the patients may be unable to leave the room, or their condition may dictate that cleaning be conducted while they are in the room. This will better enable you to schedule your staff. Because the patient may be present, the overall time to perform the cleaning will be longer and must be taken into consideration. In addition, the methods used need to be planned to ensure that care is taken that the patient is neither upset by the cleaning activities nor exposed to any chemicals.

Nursing stations provide for another set of problems. They are staffed 24 hours a day and are usually cluttered. Floor care should be planned during late evening hours when activities are reduced. Normal cleaning needs to be performed to allow for minimum nursing disruption to medical activities. Either early morning or late afternoon are the best times. If the decision is to have a custodial member assigned to the floor all day, the particulars of cleaning activities can be discussed with the nursing staff and scheduled accordingly.

Biohazardous waste or medical waste is another problem that must be addressed in a healthcare facility. All municipal dumps have strict regulations concerning medical waste. Most will not accept it at all. Your facility will need to become familiar with both federal and state regulations on this matter. For instance, medical waste cannot be transported through a patient area. Additionally, some waste must be disposed of by incineration at a federally regulated and licensed facility, while some need only be made unrecognizable and disposed of as regulated trash. Human body fluids are considered medical waste, as are any items that come in contact with body fluids. Urine, blood, and vomit all need to be carefully cleaned up. Special cleaning kits for human pathogens are available; you should have them on hand and ensure that your staff is specially trained in their use. Once cleaned, these wastes are considered regulated medical waste and must be handled as such. The overall handling of medical waste needs to be well documented and monitored to ensure that safety is maintained.

Patient treatment rooms or procedure rooms create both cleaning and scheduling problems. Wherever you encounter a space where patients are undergoing treatment, you will find equipment and apparatus specific to that space. Such items as electronic diagnostic equipment, i.e., EKG, X-ray, monitors, lasers, etc., need special attention and may require additional information on proper procedures. There are examining lamps, stools, examination tables, and medical instruments that may require special attention after each patient treatment. In many instances these items may be maintained during the day by the nursing staff and then be thoroughly cleaned and sanitized by custodian in the evening. Ensure that your staff members are completely aware of their responsibilities in these rooms. It is sometimes the easy-to-miss items that could create problems for both patients and staff alike.

Surgical suites are the most critical space that your employees will clean. After each use the complete suite must be sanitized and disinfected from top to bottom. It will be necessary that your employee wear a disposable suit from head to foot. They must also scrub, just like the doctors and nurses do, and wear surgical gloves. Any cleaning items that they take into the suite must also be cleaned on the outside to ensure that germs are not being taken into the suite. If for any reason an employee must leave the suite before the cleaning is completed, they then must resuit and scrub before reentering. Every piece of equipment must be either removed from the room or covered so that ceilings, walls, and floors can be cleaned. Then all fixed equipment must be painstakingly cleaned to ensure that nothing is left on the equipment that could spread infections. As equipment is returned to the surgical suite, it must be completely sanitized and carefully placed back within the suite. Once everything has been cleaned, the custodian can leave the surgical space, remove and dispose of the suit, gloves, and disposable supplies used in the cleaning process before leaving the area. In some cases, the nursing staff will require that the space be inspected by them before the custodian leaves.

As you can see, the healthcare facility provides some unique and special situations. No two facilities are going to be alike. It may be necessary to have a thorough understanding of the operations of your facilities and the unique considerations. Close communications with the operational staff will be critical in the successful scheduling of cleaning needs and concerns for these healthcare facilities.

K-12 Facilities

Tom Spearing

Assignable Cleaning Time

Originally, many K-12 (Kindergarten through 12th grade) facilities were neighborhood schools that were relatively small compared to the Unified School District type of facilities typically in use today. Previously, the "custodian" was the custodian of the building who not only cleaned the spaces, but mowed the grass, shoveled the sidewalks, fixed broken things, set up spaces for special events, delivered packages, and operated the central heating furnace or boiler. This perception of the custodian by administrators, faculty, and support staff still persists at all levels in the educational institution cleaning industry today, but to a greater degree is the reality in the K-12 system.

The result of this is that there tend to be more varieties of work, other than cleaning, assigned to the custodians. In some operations these non-cleaning assignments can take as much as 40 to 50 percent of the total time available in the worker's shift. Since the APPA guidelines calculation techniques only establish FTE for cleaning activities, unless these assignments are taken into account, staff comparisons to the APPA guidelines or other institutions will be meaningless.

Determining Actual Cleaning FTEs

Some methods for recording the amount of non-cleaning time spent on a work shift were presented in Chapter 5. The quantities of time actually spent on those activities can be accumulated over a period of time using labor distribution sheets. These are simply reports, often broken into quarter or half-hour increments, filled in by each worker who records what activity is being performed during each time interval during the day. These sheets can be turned in daily or weekly. Although workers tend to complain about the activity, the shorter the interval required for submission will probably result in more accurate data.

One institution found that a sufficient degree of overall accuracy needed for assessing non-cleaning effort was obtained by requiring daily reports from their employees during a six-month period of time. If supervisors are required to perform cleaning activities as part of their work day, that labor distribution can be evaluated using these methods also. If the custodian performs his or her duties in several buildings, you should consider a labor distribution sheet for

each location. Specific data for each location will be crucial as you evaluate cleaning levels in your facilities with relation to actual cleaning FTEs. A typical Labor Distribution Sheet might look like Figure 28.

After six months of collecting data an analysis of the department might look like Figure 29. The analysis would indicate that a crew of 12 only expends the equivalent of 6.94 FTEs on actual cleaning tasks ($7,222/1,040 = 6.94$). This calculation, coupled with the cleaning level analysis from Chapter 7, will yield the necessary adjustments required to achieve a specific cleaning level. The analysis also highlighted a significant amount of overtime for the month of May.

Staffing Calculations

Virtually all spaces may be modeled using the APPA standard space designations described in Chapter 3. Many of the elementary buildings have the "open" classrooms which tend to get somewhat cluttered, depending on the

Name: <i>Jim Smith</i>	Week Ending: <i>2/6/99</i>				Location:			
	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Total
Supervisory	0	2	5		1	5		8.50
Emp. Benefits—Vac., Jury Duty, National Guard				4 v				4 v
Maintenance Repairs		2.25	1	2	1			6.25
Actual Cleaning		1			4			5
Training		1						1
Meetings								
Pick-Up Delivery—Delivering Supplies		.75	1.5	.5		1		3.75
Flags, Snow, Pools		.5	.5	.5	.5	.5		2.50
Lock and Unlock Building		.5	.5	.5	.5	.5		2.50
Working with Outside Contractor			1	.5	1			2.50
Set Up—Outside Groups—Conferences						6		6
Set Up—School Related—Sports Events						2		2
Total Hours		8	9.5	8	8	10.5		44

Figure 28 Labor Distribution Sheet

Six-Month Analysis	Jan.	Feb.	Mar.	Apr.	May	Jun.	Total	FTE
Supervisory	130	135	180	200	156	50	851	8.18
Emp. Benefits—Vac., Jury Duty, National Guard	20	8	40	32	16	8	124	0.12
Maintenance Repairs	120	124	147	140	160	600	1,291	1.24
Actual Cleaning	1,222	1,303	1,200	1,197	1,400	900	7,222	6.94
Training	48	48	48	48	48	48	288	0.28
Meetings	8	8	8	8	8	8	48	0.05
Pick-Up Delivery—Delivering Supplies	200	200	200	200	200	248	1,248	1.20
Flags, Snow, Pools	44	44	44	44	44	44	264	0.25
Lock and Unlock Building	44	44	44	44	44	44	264	0.25
Working with Outside Contractor	24	10	15	5	55	120	229	0.22
Set Up—Outside Groups—Conferences	100	120	130	140	360	10	860	0.83
Set Up—School Related—Sports Events	120	36	24	22	10	0	212	0.20
Total	2,080	2,080	2,080	2,080	2,501	2,080	12,901	12.40

Figure 29 Six-Month Labor Analysis

particular faculty member, and may require more time. However, as with offices, if there is clutter, the cleaning workers usually avoid it. They either clean around it or schedule the cleaning when the person responsible prepares the space for service. Also, in many of the elementary spaces, there are small bathrooms in the classrooms that require service. They are accurately modeled with their cleanable square feet. Since there are more bathrooms in those buildings, total staffing requirements may be somewhat higher than for other spaces.

Other Special Considerations

Small children often do inappropriate things in public places which, for sanitation reasons, must be dealt with immediately. This, of course, requires some cleaning staff to be available during the day. Although that person can perform many cleaning tasks when not required for emergencies, efficiency may not be as great as that of staff assigned second or third shift (see Appendix A).

Many K-12 buildings are, even now, relatively small and scattered around the district, often quite distant from one another. Supervision can be difficult on the second or third shift when relatively few cleaning personnel are assigned each building, as many managers are reluctant—for good reason—to have unsupervised workers. This problem can be compounded when workers are required, because of the amount of work to be done, to move from one building to another during the shift. Not only are there supervisory issues, but security and personal safety ones as well. In many small school districts the daytime custodian is also assigned duties as custodial

supervisor. Their shift is timed such that he or she can interact for some period of time with the night shift personnel. Often, if there are several cleaning workers in a building on the second or third shift, one of these will be designated as a lead worker. This person would be assigned mostly cleaning duties, but have added responsibilities for ordering and delivering materials and equipment, acting as liaison with supervisor, and collecting time cards.

Some high schools have shops for vocational training. Often, custodians have little responsibility for these spaces, but they do service sinks and empty trash from the area. In these areas, custodial effort is not proportional to the area of the space. Predicting custodial effort in these spaces is discussed in Chapter 3, The Space Inventory, and in Chapter 12, Community and Vocational/Technical Colleges.

Recommended Steps for Change Implementation for K-12 Facilities

This implementation guide is designed to maximize your time as you work through the staffing guidelines. If you are confident that you have all the necessary information related to a specific area you might consider skipping one of the steps in this process.

1. Determine the amount of custodial hours devoted to cleaning. This can be implemented quickly if you do not have current data, especially if you create your own Labor Distribution Sheet. You would do well to talk with your custodial staff when you develop the list of items to include on the labor distribution sheets. When it comes to day-to-day routine the frontline workers often know what it takes to keep their customers satisfied. This will also help to promote their buy-in when you start to burden them with *this extra paperwork*.
2. Reread Chapter 1. It is the foundation for understanding the concepts present in this guideline.
3. Chapter 2 assigns a specific time to each activity and the desired level of service.
4. The data in Chapter 3 will take some time to develop, but keep in mind that you're making progress toward your goal each time one of the custodians turns in a labor distribution sheet. Hopefully that will help as you go through your drawings and develop your space inventory.

By now you are probably starting to see that there is little difference in what is required to clean a K-12 facility and an institution of higher learning. The major factor is knowing how much time the custodial staff is spending on non-cleaning activities. You may not receive support to eliminate these activities. However, you will know what staff is required to achieve the cleaning level that you, as a professional, would like to deliver to your customers.

Community and Vocational/ Technical Colleges

Jack C. Dudley

Special Use Spaces

Community colleges are fascinating places, where people are doing so many interesting things. Sometimes it seems that there are an endless variety of activities with their own unique support spaces. There are automobile repair shops, cosmetology laboratories, computer labs, hotel services and restaurant cooking laboratories, bakeries, machine shops, welding shops, and others. The custodians may have various cleaning responsibilities for these spaces depending on the policies in force at any particular location. In some spaces, the students are required to clean up after themselves, leaving the custodial staff with little responsibility other than trash removal and perhaps cleaning a service sink. In other labs the custodial staff may have full responsibility for cleaning, especially where sanitation concerns exist.

Staffing Calculations

As in other facilities, typical spaces such as offices, classrooms, and wash-rooms are accurately modeled by matching them to the APPA "standard" spaces and performing the custodial staffing calculations conventionally. Because of their individuality, each laboratory and shop area should be separately evaluated.

Some laboratory types may be similar to classrooms but have a sink or two, or other fixture, that requires service. An initial APPA standard space assignment of "Research Laboratory" may produce staffing requirements that will be close enough to use until you can develop more accurate data.

In many shops, such as automotive or welding, the spaces are quite large and custodians have little responsibility because students are required to clean up the work spaces. The staffing calculated by the APPA methods proportion the personnel requirements to the cleanable square feet of the space: Since staffing in these areas is not proportional to the size of the spaces, the non-cleaned area needs to be separated from the cleaned area. Example 2 in Chapter 3 demonstrates a technique to calculate staffing requirements under these conditions.

Often, the custodial staff is required to service other laboratories, such as baking, food preparation, or cosmetology because they have the expertise, supplies, and equipment necessary to produce a sanitary environment. The cleaning effort may not be proportional to the area involved. These areas will require individual attention to produce accurate staffing models. If you cannot use one of the APPA standard spaces to "Treat Like," you will have to go into each area and determine exactly what you do and how much time it takes. You will, in essence, create your own unique "Standard Space Matrix" to model the staffing requirements in that space. Use the methods described in Chapter 2 to create these matrices.

Special Considerations

Community and vocational/technical colleges traditionally offer an enormous variety of evening programs, both degree and special interest courses, for people who work during the day. As such, many areas of the building will be relatively heavily used in the evening immediately following a busy day. To respond to this, extra service to washrooms and public areas may be required. Also, with the buildings open far into the evening, security issues tend to be a greater concern.

Hiring, Orientation, and Standard Operating Procedures

Judy A. Stead

Custodial operation managers face a variety of routine and unexpected challenges every day. Pressures from various campus constituencies and the call to perform effectively and efficiently is constant. One way to help make your operations run more smoothly is to create standard operating procedures that provide consistent, detailed information on how your department handles particular situations. Using such guidelines also ensures that all staff members receive the same information on everything from personnel issues to how to process campus forms or request equipment.

By following stated guidelines—from the time potential employees first visit your campus for an interview, through orientation and training of new employees—in every work assignment, you are ensuring consistency in operations and bolstering staff morale. Two especially useful documents in accomplishing these goals are a hiring manual and a standard operating procedures manual.

The Hiring Process

Given your department's day-to-day responsibilities, a full staff roster is essential to ensuring that everything is accomplished. When a vacancy occurs, there is a sense of urgency to fill the position as quickly as possible. However, rushing the hiring process usually results in time-consuming work to correct hasty decisions.

The Hiring Manual

Managers must devise hiring procedures that bring effective workers to the custodial team. A department hiring manual is an essential component in this process. Putting together a manual is a proactive step toward future hiring. Once the process is in place, hiring proceeds smoothly. From a legal standpoint, the manual helps demonstrate that your department has a documented, consistent process in place.

Job Descriptions—Begin by creating a job description for each position in your department and placing it in the hiring manual. As you develop each

entry, consider the following questions to help ensure that you are including the necessary information: Does this entry provide an accurate description of all tasks currently required? What are the knowledge, skills, and abilities needed to effectively carry out those tasks? Remember, if a particular duty is important to the function of your department, include it in the job description.

Having formulated a list of knowledge and skills, the next step is to consider desirable traits. Focus on those that are most important to your organizational culture. If the environment relies on a team approach, for example, desirable traits to look for in an interview might be: smiles easily, appears cooperative, is friendly, and listens attentively. Consider how you might translate these intangible traits to the job description; for example, the position might require cooperative participation in whatever teams are established to fulfill a particular assignment.

The job description also can help you create a posting or employment requisition for each position. These should be included in the hiring manual.

Campus Hiring Procedures—Because hiring procedures vary from institution to institution, you will need to meet with your Personnel Department to learn which procedures must be completed, in what order, by your department. After you have clarified your hiring responsibilities, outline the step-by-step process and include this in your hiring manual (see Figure 30).

Interviews

Most institutions view custodial positions as entry level and offer little latitude in determining the experience and education requirements. The job description can guide the formulation of effective interview questions that help you find the best person for the vacancy. The questions help the interviewer screen for the desired attributes. For example, a manager might consider experience important in filling a vacancy on a team that cleans window blinds; in other cases, the manager might view inexperience as an asset because there are no bad habits to break. Interview questions can help the manager determine each candidate's skills and experience. Be sure to include questions that require specific answers as well as those that necessitate open-ended responses.

After you have written interview questions for each position, create an answer sheet that interviewers can use to log candidates' responses (see Figures 31 and 32). Place the questions and response log in the hiring manual (these can be combined as one form). Note that Figure 32 includes an evaluation of each candidate's traits that should be filled out as soon as the interview is complete so that the candidate's demeanor and replies are still fresh in the interviewer's mind.

Interview Team—As part of the interviewing process, consider creating a two- or three-person interview team. Once identified, the team undergoes

training to become familiar with legal issues, including the Americans with Disabilities Act and Title VII requirements and procedures. At the conclusion of this training, each member of the interview team should acknowledge in writing that they have received and understood the presented material.

The interview team should identify *how* to conduct the interview. It is important to understand the interview from the candidate's perspective, and to do all you can to put him or her at ease. This will go a long way toward gaining the information you seek and to establishing your future relationship. Finally, remember that from a legal standpoint, it is critical that interviewers avoid making statements that could be construed as promises.

Upon completion of the candidate interviews, set aside time to compare and summarize notes, rate the candidates, and schedule reference checks. Your department may also be responsible for the police check process and/or personality profile work. If so, these must be scheduled in a timely manner.

Hiring Strategies

If your budget has an allotment for temporary help, you may want to consider developing a strategy whereby all employees enter the department as temporary employees. In effect, the employee has the opportunity to learn the campus through varied assignments, and the variety introduces him or her to the rest of the staff. This provides for an extended probationary period. Supervisors and coworkers should evaluate temporary staff on a routine basis. Monthly reviews work well and should be followed by coaching sessions.

The pool of temporary workers provides a trained, screened workforce that is available to fill permanent vacancies as they occur. With this pool, the manager can hire a known entity.

Orientation

Because institutions vary, the first step in creating an orientation process is to identify your objectives. These generally center around helping new staff members become independent and productive workers and include attention to the campus culture.

Typical objectives include:

- Reassuring the new hire that he or she has made the correct decision accepting a position at your university
- Stating the informal and formal expectations in an organized manner
- Giving the new hire the tools required to be successful
- Giving the new hire the information required to be productive as quickly as possible
- Team building and laying the foundation for trust and respect
- Providing a user-friendly reference package for the new hire
- Providing consistency in new hire orientation practices

An effective orientation should consist of three components: a welcome packet, a general orientation, and a job-related orientation. The welcome packet should be sent to new staff members after they have received and accepted the job offer but before they arrive on campus. It can include a letter that reinforces your department philosophy and helps each new employee feel like an important member of the facilities management/custodial operations team. The letter identifies a campus contact who will supervise the new employee's orientation. This person can be the facilities manager, department supervisor, or their representative serving as an orientation specialist. The letter can invite the new staff member to list his or her questions about the job or campus and ask him or her to return these questions to the orientation specialist as soon as possible (see Figure 33).

The packet should also include a list of orientation objectives and orientation checklists for meetings with the facilities director or his or her representative (orientation specialist) and supervisor (see Figures 34 and 35). The orientation specialist should also maintain copies of the checklists for each employee. In the examples provided in Figures 34 and 35, the line in front of each item is used to indicate when that part of the orientation is completed and should be initialed and dated by the employee. Supervisors can use these checklists to ensure that each employee receives the required information. The orientation specialist or supervisor should also keep a chart indicating the completion of significant milestones in the hiring and orientation process, such as interview, police check, start date, and completion of orientation (see Figure 36).

Either with the welcome packet or on the new staff member's first day, it is appropriate to welcome him or her to campus with a small gift. These could include a university mug, door or desk name plate, a university shirt for casual Fridays, or a lapel pin.

New employees should receive their general and supervisory orientations as soon as possible. While it is undesirable to overload new staff with information, it is important that all essential information be provided in a timely fashion. It also helps to set aside a period during each day for the new employee to review the materials he or she has received and discuss any questions that may arise. Care should be taken to integrate new employees' responsibilities with their orientation so that they can understand the materials they needed to perform satisfactorily and ensure that the demands of the job do not supersede the necessity of completing orientation.

Standard Operating Procedures Manual

Consistency in the day-to-day operations develops trust and respect in the department by ensuring that staff are treated fairly and held to the same standards and procedures. To achieve this result, all levels of the organization need a carefully planned standard operating procedures (SOP) manual. The SOP manual empowers your supervisory staff and builds confidence as they

learn to supervise team members. Guesswork is eliminated while standardization is promoted and reinforced. Time formerly spent trying to obtain answers to "How do I . . . ?" can now be utilized in more productive pursuits.

The SOP manual should include steps for handling various administrative tasks and quick references for information that is needed to maintain smooth operations. Often these tools already exist; creating the manual requires only gathering the information together and deciding on the format and organization. Keep the manual user-friendly and simple.

The SOP manual is actually a guide to best practices. Sections might include:

- department vision, mission, goal statements
- supply ordering/delivery locations
- uniforms
- disciplinary procedures (samples of completed forms)
- keys
- quality assurance/inspections
- overtime procedures
- fire and tornado procedures
- department policies governing absences, tardiness, vacations
- equipment ordering
- maintenance work orders
- pest control
- laundry, drapery cleaning
- paychecks
- safety and health
- training
- lost and found
- recycling
- emergencies
- snow day procedures
- general office equipment
- vehicles
- identification cards
- code of conduct
- calendars
- communication protocol
- first aid equipment
- accident procedures/forms
- overtime authorization
- Material Safety Data Sheets/locations for notebooks
- work schedules; breaks, lunch, clean-up
- department vision, mission, goal statements

By creating consistent hiring, orientation, and operating procedures, you communicate to your staff the importance of teamwork and quality. Check-

lists ensure that no one can complain that he or she did not learn about a certain procedure or requirement. The process of developing these materials also helps you identify weaknesses in your activities and make your overall operations more efficient and effective. At the same time, this attention to continuity provides the necessary backup information should any question of legal improprieties arise.

Figure 30 Campus Hiring Procedures

1. Request applications from Personnel Services.
2. Screen the application.
3. Make calls to set up appointments with interested, qualified applicants. If the candidates are unavailable, document date called and response and return to Personnel Services.
4. Return applications of unsuitable candidates to Personnel Services.
5. Interview candidates by interview committee.
6. Conduct reference checks on the background of candidates.
7. After the interviews and the return of a clean police check, ask successful applicants to complete all appropriate paperwork.
8. Notify successful candidates of report date, time, and place.

Figure 31 Sample Interview Questions for Specific Position

Interview questions—152/Floater

A. Employment History

- 1) How long did you work for your last employer? Why did you leave?
- 2) Why do you want to change jobs (employers)?
- 3) What do you like the least about your present position?
- 4) Specifically, what do you do for your present employer?
- 5) Specifically, what did you do for your last employer?
- 6) If I talked to your coworkers at your last job, what would they say about your work and work habits?
- 7) What would your supervisor say?
- 8) What former bosses, coworkers, and subordinates can I call for references?

B. Job Satisfaction

- 9) What factors are most important to you in terms of job satisfaction?

C. Career Goals

- 10) What goals have you set for yourself?
- 11) What would like to be doing 5 years from now? 10 years?
- 12) What do you think you will be doing?

D. New Position

- 13) What do you think you will like most about this job?
- 14) What do you anticipate being the most challenging aspects of this job?

E. Company Fit

- 15) Do you consider yourself amicable (pleasant to be around)?
- 16) Are you a team player or are you more satisfied working alone?
- 17) Do you praise the contributions of others?
- 18) What characteristics do you believe an outstanding peer should possess?
- 19) How would you handle a "problem" coworker?
- 20) What are your strengths as you see them? Would your friends agree?
- 21) What can we expect from you if you come to work for us?

F. Job Prerequisites

- 22) This job requires lifting 50 pounds. Is that a problem?
- 23) We begin our shift at 5:00 a.m. Can you follow this schedule?
- 24) Night crew pushes and pulls heavy equipment. Are you able to push heavy equipment back and forth?

Figure 32 Sample Interview Response Log for Specific Position

Interview Response Log—152/Floater

Interviewer _____

Applicant _____

A. Employment History

1)

2)

3)

4)

5)

6)

7)

8)

B. Job Satisfaction

9)

C. Career Goals

10)

11)

12)

D. New Position

13)

14)

E. Company Fit

15)

16)

17)

18)

19)

20)

21)

F. Job Prerequisites

22)

23)

24)

Trait Evaluations

Energy

- ☐ Displayed ambition, showed evidence of drive
- ☐ Displayed lack of energy, seemed lethargic, slow

Emotional maturity

- ☐ Displayed positive attitudes
- ☐ Was positive about past working relationships
- ☐ Other (explain)

Motivation

- ☐ Displayed enthusiasm for the university
- ☐ Displayed enthusiasm for the position
- ☐ Seemed mildly interested
- ☐ Other (explain)

Loyalty

- ☐ Spoke critically of past employers
- ☐ Displayed unwillingness to adjust to company culture
- ☐ Positive spin on past employers

Career Orientation

- ☐ Applicant's goals match position opportunities
- ☐ Applicant's goals are realistic, given applicant's background

Figure 33 Welcome Letter for New Employees

TO:
FROM:
DATE:

Welcome to Plant Operations!

It is my pleasure to assist you in your Orientation Program. Please feel free to contact me with any questions you may have both now and after your arrival here on campus. I can be reached at xxx-xxxx, and I am usually in my office from 3:00 – 5:30 p.m.

Everyone in Plant Operations will do all we can to quickly make you feel a part of our team. I have an agenda of the standard orientation items, and we would like to give you the opportunity to forward feedback regarding your own orientation goals and needs.

I've listed a few questions below, but please feel free to ignore them and write your own! Please return your questions in the envelope provided or call me at xxx-xxxx.

- 1) What would you like to learn first?
- 2) What are your expectations for the first day?
- 3) What projects or operations are you most interested in learning about?
- 4) Can we provide a tour of a specific building, place, or office on campus that is of particular interest to you?
- 5) Other?

We look forward to hearing from you and are glad you will be joining the Plant Operations team.

Figure 34 Orientation Checklist—Meeting with Facilities Director or Representative

Orientation Program for Professional Staff: General Information

For _____

Date _____

- _____ 1 Provide Professional Staff Handbook; notify association to place the individual on the mailing list
- _____ 2 Provide Professional Staff handouts, including a copy of newsletter
- _____ 3 Provide Recreation Center application and information packet
- _____ 4 Provide staff and faculty phone book with frequently called numbers listed on cover flap
- _____ 5 Provide Union Agreement. Discuss current relationship with Union Employer Involvement
- _____ 6 Provide ID card information and how to obtain
- _____ 7 Provide miscellaneous forms with completed templates
- _____ 8 Provide office supply catalog with order blanks and completed template
- _____ 9 Provide personality profile and sample
- _____ 10 Discuss dress code
- _____ 11 Provide mission statement of university and department
- _____ 12 Provide organization charts for Plant Operations and university
- _____ 13 Provide university information packet and administrative affairs guide
- _____ 14 Discuss continuing education benefits/fee waiver
- _____ 15 Discuss training (professional needs and department needs)
- _____ 16 Introduce APPA information
- _____ 17 Schedule an information services and e-mail class

Tour Suggestions

- _____ 1 Purchasing plant agent
- _____ 2 Personnel
- _____ 3 Building services, managers, director
- _____ 4 Union executive staff, phone numbers, fax
- _____ 5 Safety and health
- _____ 6 Student union meeting rooms, food court, bookstore
- _____ 7 Administrative offices: budget, payroll, print shop, credit union

Figure 35 Orientation Checklist—Meeting with Department Supervisor

Orientation for Professional Staff: Meeting with Supervisor

For _____

Date _____

- _____ 1 Review Position Description Questionnaire
- _____ 2 Discuss Performance Appraisal Process, review dates
- _____ 3 Present goals for quarter with deadlines
- _____ 4 Present first assignment and deadline
- _____ 5 Sign up for Personnel Services orientation
- _____ 6 Place introduction on agenda for Facilities monthly meeting
- _____ 7 Create a written introduction and biography and distribute to new employee's frequent contacts
- _____ 8 Discuss department and Facilities organization charts
- _____ 9 Identify departments of frequent interaction
- _____ 10 Describe current projects, barriers, priorities
- _____ 11 Discuss your expectations and preferences regarding:
 - phone calls, voice mail, e-mail
 - when and how to page you
 - use of the pager
 - clerical assistance
 - regularly scheduled meeting day and time. Describe expectations regarding preparation, formal agenda, follow-up, etc.
 - when to place something in writing
 - what should be treated as confidential
 - discuss what supervisor expects from him or her as well as what he or she can expect from the supervisor
- _____ 12 Discuss committee assignments and provide handouts. Submit his or her name to department and committee chairs. Provide a schedule of meeting dates, etc.
- _____ 13 Establish regular and frequent meetings for the first two weeks. Schedule zone or department meetings
- _____ 14 Discuss budget
- _____ 15 Discuss petty cash
- _____ 16 Discuss parking, building security, codes, keys, etc.
- _____ 17 Discuss introductions supervisor will schedule during the first two weeks
- _____ 18 On day 10, new employee writes a report on the operations as he or she has observed them

Figure 36 New Employee Checklist

Name	Interview Date	Police Check	W-2; tax papers	Custodial Training	MSDS Training	Bloodborne Pathogen	Start Date	Perm. Hire Date	Ending Date 152 hours	Orientation	Upper Mgt. Intros
Barb Frey	Done	x	x	x	x	x	3/20/98				
Kent Foster	Done	x	x	x	x	x	5/13/98				
W. Brown	Done	x	x	x	x	x	3/28/98				
T. Bird	Done	x	x	x	x	x	5/13/98				
Carol Gates	Done		x		x	x	6/10/98				
Anthony Ware	Done	x	x	x	x	x	6/10/98				
Marilyn Gee	Done	x	x	x	x	x	6/10/98				
Sherman Gee	Done	x	x	x	x	x	6/10/98				
Beverly Littleton	Done	x	x	x	x	x	6/10/98				
Jennifer Harris											
Kenny Knox											
Limmie Reynolds											
Tony Gibson											
Glenn Amstutz											
Robert Fitch											
Delores Ledford											

Training the Staff

Paul Courtney

An effective training program is an investment in the most important and expensive resource of the custodial operation—your employees. The return for the institution can be increased productivity, fewer work accidents, and a more motivated staff. Training may be defined as the development of appropriate habits of thought, action, skills, knowledge and attitude. In order for any training program to be successful, it is necessary to have knowledgeable instructors, well-developed materials, appropriate facilities and equipment, and, most importantly, management support.

Training must be provided on a continuous basis. Although an employee may be properly trained at the beginning of employment, continuous training and development are necessary to help that employee become more professional, improve skills, incorporate new methods and materials, and develop customer service skills. Every employee must be aware of what their position entails and understand that they will be completely trained to accomplish each and every aspect of these duties. This comfort zone ensures a quality level of service at expected quantity standards. Training also helps employees understand where their responsibilities begin and end, in order not to interfere with the functions of another department. For example, custodians should not “assist” grounds personnel with weed control by emptying used stripping solution in newly-planted flower beds.

As requirements of certain facilities differ, so do the training needs in each of these facilities. While it is possible to purchase prepackaged training programs, these can be expensive and may not fit your specific staffing and needs. Additionally, custodial suppliers also offer training but tend to slant their presentations more toward product sales than proper procedures.

Some of the most effective programs are developed entirely in-house, using a combination of classroom instruction, video/slide presentations, individual training of custodial tasks by supervisors, and on-the-job training with close monitoring by another custodian. This type of interactive training requires the trainer to develop a class outline indicating the specifics of each segment of the training program. Video/slide presentations can be made in-house using custodial staff or purchased from a variety of vendors.

Developing a Strong Training Program

Just as the entire training process is a structured and orderly procedure, so is the preparation and development of a training program. A well-organized program with a knowledgeable and dynamic instructor will be successful. The organization of such a program needs to be sequential, as follows:

1. *Examine your current systems.* Begin by reviewing the tasks and functions of each custodial position. Assess whether proper procedures for each task have been developed and, if not, put these in place.
2. *Define your training goals.* When your systems review is completed, you can identify the necessary elements of the training program. A comprehensive program might include:
 - safety orientation
 - cleaning procedures and techniques
 - rules and regulations
 - standards of professionalism
 - levels of competency
 - quality standards
 - customer service values
3. *Define and document the training objectives.* Once the goals of the program are determined, the next step is to articulate specific training objectives, which may include the following:
 - safe and effective use of cleaning chemicals
 - safe and efficient use of powered equipment and proper maintenance
 - safe and appropriate use of hand tools
 - the best method for each cleaning task
 - work rules, policies, and procedures
 - interpersonal skills and customer relations
4. *Designate the trainer(s).* Select staff members who can best meet the goals and objectives of the training program. As much as possible, involve trainers in the development of the program. This increases their enthusiasm and brings in additional perspectives on what to include and how best to present it.
5. *Analyze and develop program design.* Once the goals and objectives are determined, the program developer can develop content and methods that meets these requirements. For each training component, he or she must determine the following:
 - appropriate media, i.e., computer, video, charts, slides, etc.
 - need for outside personnel or experts
 - order in which training elements should be presented
 - frequency of particular program elements
 - the location and time for training

6. *Field test the program.* With the participation of management and supervisory staff, present each phase of the program for comment and evaluation. Effective presentations require the confidence and ease that come from repeated practices. The audience must be willing to listen attentively and offer constructive criticism that can improve the presentation; likewise, the trainer must be receptive to these comments.
7. *Revise and fine tune the program.* Use the results from the field tests to make adjustments to the training program.
8. *Schedule and implement the program using the following paradigm.*
 - explain the process
 - demonstrate the procedures
 - observe and correct the trainee's performance
 - evaluate the results

Beyond the Presentation

Equally important as the presentation, is the learning environment. It is essential that any learning experience be conducted in a systematic and organized manner. All sessions should be relaxed and informal, for the trainer as well as the participants. By so doing, the interest and enthusiasm expressed by the trainer should be matched by the trainees. All training sessions should be conducted in a comfortable physical environment, which is well-lit and ventilated. For best results, the sessions should be free of interruptions and distractions.

As with all areas of any job, the training program must be dynamic. It will need to be adjusted and modified on a continuing basis to meet the needs of a changing environment. Following these same basic steps can also help the program developer redesign training components as needed.

To be effective, training programs must present relevant and complete information. At the same time, both instructors and trainees must be relaxed and have fun during the presentations. Keeping both these factors in mind will produce a successful training program on your campus.

Team or Specialized Cleaning

Jim Adams

Over the years the cleaning industry has utilized a variety of methods. Team cleaning is one of the newest and increasingly popular methods.

Team cleaning is similar to gang cleaning, in which several people clean the same space at the same time. With team cleaning, however, different people clean the same space, but the timing of cleaning is systematically staggered so that employees are not in the same room at the same time. The team members are referred to as specialists because each has specific, but different, tasks and responsibilities. The objective of the team is to improve the cleaning of the facility by cleaning effectively, efficiently, and safely while effectively combining resources to accomplish the organization's cleaning goals.

Team cleaning has generated a lot of discussion about savings and the value added to the job. The general belief is that team cleaning can save time and other resources under certain circumstances. The realized savings may be converted to increased services for your customer.

Under the team cleaning approach, each member has specific duties within an area. The number and makeup of assignments can vary for each facility. Employees should have the appropriate tools and materials to do their job and be provided with a written routine (see Figure 37) defining the tasks and responsibilities. As a result, employees gain a thorough knowledge of daily responsibilities, and supervisors have a clear understanding of what to expect from employees.

The following examples list specialty tasks and their corresponding responsibilities.

Task:	Responsibility:
Trash	Emptying trash containers, replacing liners, removing to compactor, collecting the recycling
Light-Duty	Dusting, picking up, wiping, straightening furniture
Floor	Vacuuming, sweeping, dust mopping, spot mopping
Restroom	Complete cleaning of restrooms
Utility	Relamping, cleaning vents, cleaning stairs and elevators, cleaning trash containers
Carpet	Spot cleaning and shampooing/extraction of carpets
Refinishing	Complete resurfacing of hard floors

Once a team structure has been determined, the specialty tasks are carried out in the following order in each space:

- Trash
- Light-duty
- Floor
- Utility
- Carpet or refinishing

Each employee checks the work of the preceding team member to ensure that the work has been completed.

Advantages to Team Cleaning

Advantages to team cleaning may be realized in four areas: productivity, efficient use of resources, communication, and supervision.

Productivity:

- Specialization enables employees to become more proficient in specific tasks leading to improved productivity

Efficient use of resources:

- Requires less equipment
- Reduces equipment repair and replacement
- Reduces storage space requirements
- Reduces chemical waste and misuse
- Distributes supplies and materials more efficiently

Communication:

- Enhances team ownership and individual accountability through appropriate communication

- Enhances personal and building security
- Encourages individual accountability through positive peer interaction

Supervision:

- Requires fewer total area inspections as a result of peer inspections
- Increases number of employees monitored in larger area
- Increases communication efficiency

Disadvantages to Team Cleaning

Productivity:

- Requires replacement of absent team members
 - Substitute may not be as productive due to the lack of experience in the specialty task
 - Substitute may not have sufficient knowledge of area

Communication:

- May disrupt team relationships through inappropriate communication
- May make communication and understanding difficult due to language barriers and cultural differences
- May disrupt communication and cooperation as a result of personality conflicts

Supervision:

- Requires training in team cleaning concepts
- Makes individual performance evaluations more difficult
- More difficult to detect deficiencies because of increased span of control

Healthcare Considerations

When considering team cleaning for a healthcare facility, the custodial supervisor must remember additional factors. Because of the critical nature of healthcare facilities and patient care, the specialized functions of unique spaces may require *room specialists*. These specialists would perform *all* cleaning tasks required in a particular space type, some of which are listed below.

- Patient rooms
- Treatment rooms
- Washrooms
- Operating rooms
- Public spaces
- Nursing stations
- Examination rooms
- Emergency rooms
- Diagnostic rooms

Staffing

The process of establishing staffing for team cleaning uses the times listed in the APPA guidelines. You can use either the times listed in the room matrix with the associated frequency level or the times listed in Appendix E, Normalized Base Times and Standard Activity List. Either method establishes a starting point in the number of personnel versus cleanable space.

The times originally based on the zone cleaning method will improve with team cleaning. The incremental time required to change chemicals, supplies, and equipment and travel to and from a cleaning cart will be reduced. A time study of representative spaces examining each task specialty is necessary to establish new base times. Supervisors may develop work assignments from these new base times.

Supervisors can custom fit distribution of tasks and the number of specialists to the facility and customer requirements. Whatever the facility configuration, there is some combination of either task and/or room specialists that can both fit the need and produce operational efficiencies.

Analysis and Reorganization

Julia Wertz

The Dynamics of Change

In the years since the publication of the first edition of the *Custodial Staffing Guidelines*, users have employed the rational analysis methods for a number of purposes. Staffing levels have been evaluated, additional staff have been hired, staff assignments modified, workers compensation claims and/or union grievances for overwork successfully denied, and, probably the most comprehensive of uses, cleaning operations have been totally reorganized. This chapter contains a distillation of these experiences, and the four subsequent chapters are actual case studies.

The planning steps for the reorganization are fairly universal and can generally be accomplished with in-house staff without need of a consultant. Still and all, good firms can speed the process and, if significant personnel savings are anticipated, it may be worthwhile to consider an investment of this nature. Also, a more modest involvement of a consultant may be a good strategy if an opinion of an outside, impartial "expert" would help.

However, properly used, the APPA guidelines can serve this function. Probably the most important part is a first-line supervisory staff committed and trained to manage the change. The methods described here are not an overnight "quick fix." The analysis and subsequent planning in all four cases involved effort over a year before the plans were finalized and implementation of changes begun. Even then, many changes were staggered over a period of time such that perhaps three years passed before the final visualized organization emerged. This "rate of change" may be faster than some people/organizations can tolerate, and the process can become traumatic. It is in this phase that some personnel involved in the process become nervous about what they have allowed to happen, and the astute "change agent" must include strategies to mitigate these problems when they occur.

The Function of Group Dynamics in the Change Process

The application of the guidelines will represent a change for an organization. Some individuals are resistant to change and may react negatively to anything that is different than their regular schedules and routines. Even managers implementing change can find themselves responding in a nega-

tive manner to the behavior of employees inside and outside the department(s) undergoing transition. This chapter was designed to increase the understanding that reactions to change can be managed and the negativity mitigated.

The Three Stages of the Group Development Process

Every group of people in transition will go through three stages of development if the goals for which the change was implemented are to be reached. These stages are:

1. ORIENTATION: Characteristics of this period are a desire to have structure and goals clarified. Employees wonder what role they are each to play. This is the time when expectations need to be clearly presented. Many employees tend to act puzzled, hesitant, or dependent. Other employees will use this time to test the boundaries of what they can and cannot do. The agent of change (the leader) is often looked to as the omniscient, omnipotent, all caring authority figure. Some people will greatly desire approval and acceptance from the leader. One of the methods of accomplishing this is to give the leader inside information.

Some of the most important tasks for the leader to accomplish during this period are:

- Communicating the goals clearly
- Determining methods of achieving the goals
- Attending to social relationships
- Helping people to find their "niches"
- Determining what the level of commitment will be from each employee involved

The expected content and communication style is usually stereotyped and restricted. Problems are generally approached rationally with emotions in check. There is a lot of testing of the waters to determine what is safe and where the boundaries are. Needing to fix the perceived problem, giving and seeking advice, and spending too much time on how much everyone has in common are some of the traps into which the department undergoing change can become stuck. Staying in this comfortable stage can deter the group from fully achieving its potential and the goals for which it was organized. This time frame is also known as the "honeymoon" phase and should be savored. Sooner or later all will be wondering, "Will there ever be peace in our lifetime?"

2. CONFLICT: This is the stage when it seems that all hell has broken loose. Those nice people who were holding the door open for each other just the other day are now plotting evil against one another and, worse, against you—their fearless leader!! The issues involved here are dominance, power, and control. There is strife between individual employees or between individuals

and the leader. Resistance toward forward movement of change increases. During this stressful stage negative comments and criticism increase. There are a lot of "ought" and "should" types of advice being given which, translated, means "look how much I know compared to those idiots running this place." This should be construed as a maneuver to jockey for power. People are quick to judge each other, and there is increased disenchantment and anger at the leaders of the department and organization. Unrealistic expectations that no leader can meet tend to grow exponentially. The group will split between those "for" and "against" the leader. The suppression of anger at the person in charge can result in misplaced aggression and "scapegoating."

It is very easy, during this turbulent time, for those in the leadership role to lose heart and turn back from pressing toward the goal(s). But, this is where persistence pays off. It is imperative that the organizational leaders continue to give and receive feedback and make adjustments as needed while the organization is moving toward the stated goals. It is an excellent time to develop your sense of humor and to learn to not take the negatives personally. A sufficient support system for all, and in particular for those leading the change, is crucial. Should the change process be abandoned because of the stress encountered, the employees will learn through reinforcement that escalating resistance will bring them back to the safe haven of status quo. If this happens, any future attempts at change will be much, much harder to negotiate. Accordingly, it is crucial to carefully plan, commit to, and clearly communicate the goals before we set the change process in motion. Once this is completed, not to follow through with the plan for achieving the stated goals will send messages that reinforce employees' negative behaviors in the future.

3. COHESIVENESS: Persistence, during the conflict stage, toward the organization's stated goals will bring the employees undergoing transition to a desirable state of cohesiveness. The characteristics of this stage are an increase in morale and trust. Most employees will begin to affirm each other and save attacks for the members' adversaries outside the department or organization. There will be evidence of mutual support, group spirit, and cooperation. This does not mean there will be no more trials and tribulations. However, employees are more likely to compromise individual agendas for the overall good of the department. This is what is generally known as a productive working group that is operating in the present. Major past concerns have been resolved. The present group should be interested in doing the necessary tasks to assure the employees stay on target to meet future goals.

The concern for being liked is one of the issues of this period. Also is the desire for keeping the newfound peace and unity. Employees usually remember the past turmoil and will do almost anything to avoid returning there. However, this attitude of "let's stay where it is safe" will stunt growth and encourage stagnation within the department. Just when you thought the

state of paradise has been finally gained, you will discover that it was only a visit. The change process and the three stages of group development are an ongoing circular dynamic.

Recommended Considerations Prior to Initiating the Change Process

1. CONDUCT A CUSTODIAL STUDY, which may be better done in-house, for the following goals:
 - Develop a comprehensive space inventory in accordance with APPA methods
 - Determine the present level of cleaning using APPA methods
 - Determine the desired cleaning level in each space type
 - Calculate the new staffing requirements in accordance with the new cleaning levels and based on required costs
 - Develop an organizational plan that takes into account the best times to clean each building as well as the non-cleaning tasks you are required to perform
 - Determine custodial areas as well as tasks and task frequencies to be performed in each space type, including standardized time/equipment/materials to perform each task
 - Develop appropriate evaluation/inspection tools, including frequency of the audits
 - Develop an ongoing training program for supervisors and custodians to the end that each group is knowledgeable about all phases of their jobs
2. DEVELOP AN IMPLEMENTATION PLAN. If you have been involving all groups in your organization during the custodial study, the following effort will be easier. Methods such as meetings, briefings, news articles in organization media, flyers, or pamphlets can be employed to "spread the word."
 - Sell the program to senior staff
 - Sell the program to customers
 - Sell the program to supervisors
 - Sell the program to the custodians
3. IMPLEMENT THE PLAN, watching the process carefully and being aware that it may have to be continuously corrected as events progress.

In Closing

Following this chapter are some real-life experiences of organizations that have undergone change when implementing the recommendations suggested in the APPA guidelines. One can compare the three stages of change: orientation, conflict, and cohesiveness in the case studies that follow.

Case Study: The Georgetown Experience

Henry L. Wells and Richard P. Payant

Background

In 1992, Georgetown University, like other colleges and universities, was faced with tough fiscal decisions. Within Facilities Management we knew that, as an overhead organization and the largest department on campus, we would probably be hit with a personnel reduction in the near future. With that in mind, we searched for ways to streamline our operations and improve our efficiency. One of the areas we focused on was custodial cleaning.

In April 1992, the director of facilities management attended the APPA Custodial Staffing Guidelines Seminar at the Pheasant Run Resort, Illinois, along with the associate director for zones and area maintenance, and the custodial administrator for the Medical Center. This turned out to be an extremely important and beneficial seminar. The then-new *Custodial Staffing Guidelines* provided a good tool to determine staffing levels and to quantify the type of cleaning we were providing. Up to this point, there was no mechanism to measure whether we were staffed properly or to justify our schedule and sequence of cleaning. Upon our return to the university, we decided to conduct a custodial study, using the new APPA guidelines, to determine the following:

1. Our current cleaning level
2. The required cleaning level
3. The correct staffing level
4. Performance standards
5. Training needs

We would then develop a cleaning plan for the university based on our findings. The three of us spent hours brainstorming on the best way to conduct the study. We agreed that it should be done in-house, because everyone had a vested interest in making it work.

The Custodial Study, Seven Phases

Phase I: Space Inventory—The Division of Facilities Planning & Project Management Office provided us with the Georgetown University Space Utilization Reports and Building Floor Plans. We gathered data from these

to identify the amount and type of space that required cleaning. We divided building space into categories as defined in the APPA guidelines. This information, covering approximately 5,000 various spaces, was then checked by custodial supervisors and administrators, who soon learned that the plans did not accurately reflect changes made to the space over many years. Each floor plan was modified to illustrate the correct usage, and this information was provided to the Planning & Project Management Office. The Space Utilization Report was then updated to include type and size of floor covering, type and size of interior glass, and other variable factors such as book stacks and equipment. We used the APPA guidelines to determine cleanable square footage for each space.

Phase II: Space Audit—Using the Space Inventory data, we completed staffing worksheets for each building using the five levels of cleaning defined in the first edition of the APPA guidelines. Figures 38–42 are examples of our calculations for the Basic Science Building. The results of the audit indicated that we were staffed to clean at Levels 2 and 3.

Phase III: Personnel Assignment Plan—In this phase we determined areas of responsibility for each custodian, tasks to be performed, cycle of each task, and finally, performance measures. We also color coded the floor space

Staffing Worksheet For BASIC SCIENCE (Level 1)				
Use of Space	Treat Like	(a) Total Sq. Feet	(b) Sq. Ft. Per Cust. @ Lvl 1	No. of Cust. Col. (a) – by Col. (b)
OFFICE	OFFICE	9,388	9,300	90
CIRCULATION	CIRCULATION	11,042	7,500	1.5
ENTRYWAY				
RESEARCH LAB	RESEARCH LAB	19,823	8,400	2.4
STORAGE	STORAGE		71,000	
ELEVATOR	CIRCULATION	136	7,500	.02
CUST. CLOSET	STORAGE	106	71,000	.002
WASHROOM	WASHROOM	699	1,800	.39
STAIRWELL	STAIRWELL	1,079	7,500	.14
CONF. ROOM	CLASSROOM	807	2,400	.16
RECEPTION	OFFICE	137	9,300	.01
TEACHING LAB				
CLASSROOM	CLASSROOM	1,030	8,400	.12
TOTALS		43,237		5.4
COST: \$124,493 = No. of custodians @ \$8.00 x 2,080 (hrs per yr) x fringe x materials				

Figure 38 Staffing Requirement Worksheet For Basic Science Building (Level 1)

Staffing Worksheet				
For BASIC SCIENCE (Level 2)				
Use of Space	Treat Like	(a) Total Sq Feet	(b) ^{Sq Ft Per Cust.} @ Lvl 1	No. of Cust. Col (a) - by Col (b)
OFFICE	OFFICE	9,388	16,500	.51
CIRCULATION	CIRCULATION	11,042	19,500	.57
ENTRYWAY	—	—	—	—
RESEARCH LAB	RESEARCH LAB	19,823	14,800	1.3
STORAGE	STORAGE	—	—	—
ELEVATOR	CIRCULATION	136	19,500	.007
CUST. CLOSET	STORAGE	106	193,000	.0005
WASHROOM	WASHROOM	699	2,500	.25
STAIRWELL	STAIRWELL	1,079	13,900	.05
CONF. ROOM	CLASSROOM	807	15,700	.05
RECEPTION	OFFICE	137	14,500	.008
TEACHING LAB	—	—	—	—
CLASSROOM	CLASSROOM	1,030	15,700	.07
TOTALS		43,237		2.3
COST: \$63,344 = No. of custodians @ \$8.00 x 2,080 (hrs per yr) x fringe x materials				

Figure 39 Level 2

Staffing Worksheet

For
BASIC SCIENCE
(Level 3)

Use of Space	Treat Like	(a) Total Sq Feet	(b) Sq Ft Per Cust. @ Lvl 1	No. of Cust. Col. (a) - Col. (b)
OFFICE	OFFICE	9,388	29,700	.28
CIRCULATION	CIRCULATION	11,042	29,700	.28
ENTRYWAY				
RESEARCH LAB	RESEARCH LAB	19,823	22,300	.89
STORAGE	STORAGE			
ELEVATOR	CIRCULATION	136	28,700	.005
CUST. CLOSET	STORAGE	106	360,000	.0003
WASHROOM	WASHROOM	699	2,800	.25
STAIRWELL	STAIRWELL	1,079	15,700	.07
CONF. ROOM	CLASSROOM	807	25,100	.03
RECEPTION	OFFICE	137	29,700	.004
TEACHING LAB				
CLASSROOM	CLASSROOM	1,030	25,100	.04
TOTALS		43,237		1.9

COST: \$42,965 = No. of custodians @ \$8.00 x 2,080 (hrs per yr) x fringe x materials

Figure 40 Level 3

Staffing Worksheet

**For
BASIC SCIENCE
(Level 4)**

Use of Space	Treat Like	(a) Total Sq. Feet	(b) Sq. Ft. Per Cust. @ Lvl 1	No. of Cust. Col. (a) – by Col. (b)
OFFICE	OFFICE	9,388	49,200	.17
CIRCULATION	CIRCULATION	11,042	35,300	.31
ENTRYWAY				
RESEARCH LAB	RESEARCH LAB	19,823	39,000	.51
STORAGE	STORAGE			
ELEVATOR	CIRCULATION	136	35,300	.004
CUST. CLOSET	STORAGE	106	1,440,200	.0001
WASHROOM	WASHROOM	699	2,300	.25
STAIRWELL	STAIRWELL	1,079	23,200	.05
CONF. ROOM	CLASSROOM	807	36,200	.02
RECEPTION	OFFICE	137	49,200	.002
TEACHING LAB				
CLASSROOM	CLASSROOM	1,030	36,200	.03
TOTALS		43,237		1.3

COST: \$124,493 = No. of custodians @ \$8.00 x 2,080 (hrs per yr) x fringe x materials

Figure 41 Level 4

Staffing Worksheet

**For
BASIC SCIENCE
(Level 5)**

Use of Space	Treat Like	(a) Total Sq Feet	(b) Sq Ft Per Cust. @ Lvl 1	No. of Cust. Col. (a) – by Col. (b)
OFFICE	OFFICE	9,388	80,800	20
CIRCULATION	CIRCULATION	11,042	39,000	28
ENTRYWAY				
RESEARCH LAB	RESEARCH LAB	19,823	168,500	11
STORAGE	STORAGE			
ELEVATOR	CIRCULATION	136	39,000	.004
CUST. CLOSET	STORAGE	106	3,120,000	.0003
WASHROOM	WASHROOM	699	2,800	25
STAIRWELL	STAIRWELL	1,079	69,600	.01
CONF. ROOM	CLASSROOM	807	42,700	.02
RECEPTION	OFFICE	137	80,800	.002
TEACHING LAB				
CLASSROOM	CLASSROOM	1,030	42,700	.02
TOTALS		43,237		80

COST: \$18,699 = No. of custodians @ \$8.00 x 2,080 (hrs per yr) x fringe x materials

Figure 42 Level 5

Staffing Requirement Worksheets For Basic Science Building

for each building to identify the cleaning space for all custodians. We decided to maintain cleaning between Levels 2 and 3, which resulted in each custodian cleaning between 16,000 and 18,000 cleanable square feet. (This is specific for Georgetown University and should not be used for comparative purposes.)

Phase IV: Supervisory Training—We developed department training for supervisors, focusing on policy and procedures, interpersonal skills, motivational skills, cleaning techniques, equipment use, product use, and safety procedures. All supervisors were encouraged to pursue off-duty training. Many of our staff are now enrolled in the International Executive Housekeepers Association's 330-hour certification training program.

Phase V: Custodial Training—We focused on safety, equipment, product use, and methods of cleaning various types of space. Immediate supervisors conduct hands-on training, which is supplemented with training from vendors and guest instructors. Supervisors now have more responsibility for training the employees in their area, allowing them to correct mistakes quickly and conduct short, on-the-spot job training.

Phase VI: Organization Plan—Our cleaning organization in 1992 consisted of 124 custodians and 18 supervisors divided into three custodial groups—Medical Center, Academic, and Residence (see Figure 43). The Medical Center Group worked two shifts: 6:00 a.m. to 2:30 p.m., and 3:00 p.m. to 11:30 p.m., five days a week. The Academic Group worked 7:00 a.m. to 3:30 p.m., five days a week, and also supported Main Campus Special Events. The Residence Group worked 7:30 a.m. to 4:00 p.m., five days a week, with eight custodians and one supervisor working overtime on weekends. Using the data from Phases I, II, and III, we examined the organization with the goal of optimizing personnel resources and technology.

Phase VII: Marketing Plan—We established methods of soliciting customer requirements and making customers comfortable with how we intended to provide service. Administrators called on customers daily, surveys were distributed to targeted customers to solicit feedback, and all customer comments were followed up and every issue resolved.

Implementation

In March 1993 the university announced plans to reduce costs in FY 94 (beginning July 1, 1993). The custodial study had been underway for just under a year, and we now had 90 days to implement our plan. In July 1993, we reduced the number of full-time custodial positions—three staff and 27 bargaining unit members—for a 20 percent reduction in our cleaning capability.

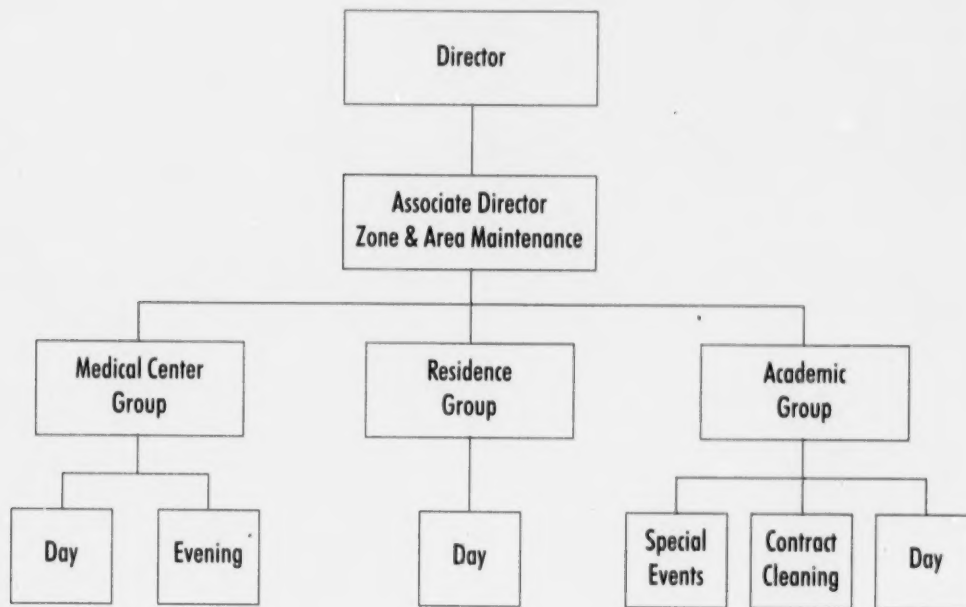


Figure 43 1992 Georgetown Cleaning Department Organization

Because we had already been analyzing our custodial cleaning process, we were in a better position than many other departments to meet the challenge of downsizing. We felt that we could absorb this staff reduction without a significant degradation of service, but we still faced many hurdles. In July 1993, we implemented a reorganization and shift schedule modification. Figure 44 shows the reorganization. The Medical Center Group would continue to clean during the two established shifts, but would lose one supervisory position and 11 custodial positions. The Residence Group would continue to work the same shift hours, but would lose two supervisory and 16 custodial positions. This group also added four permanent part-time custodians who would work in the residence halls on weekends. These part-timers would only pull trash and restock residence hall bathrooms on the weekends.

The biggest change, however, would be in the Academic Group. Forty percent of the group would continue to work the day shift, 7:00 a.m. to 3:30 p.m., while 60 percent of the positions would be converted to the night shift, 11:00 p.m. to 7:00 a.m. Several buildings on campus were already contracted for cleaning during the day. These contracts were changed so that contract cleaning would take place at night from 11:00 p.m. to 7:00 a.m., and be supervised by the in-house night cleaning supervisors. One other building was contracted for cleaning, all of which resulted in 35 percent of

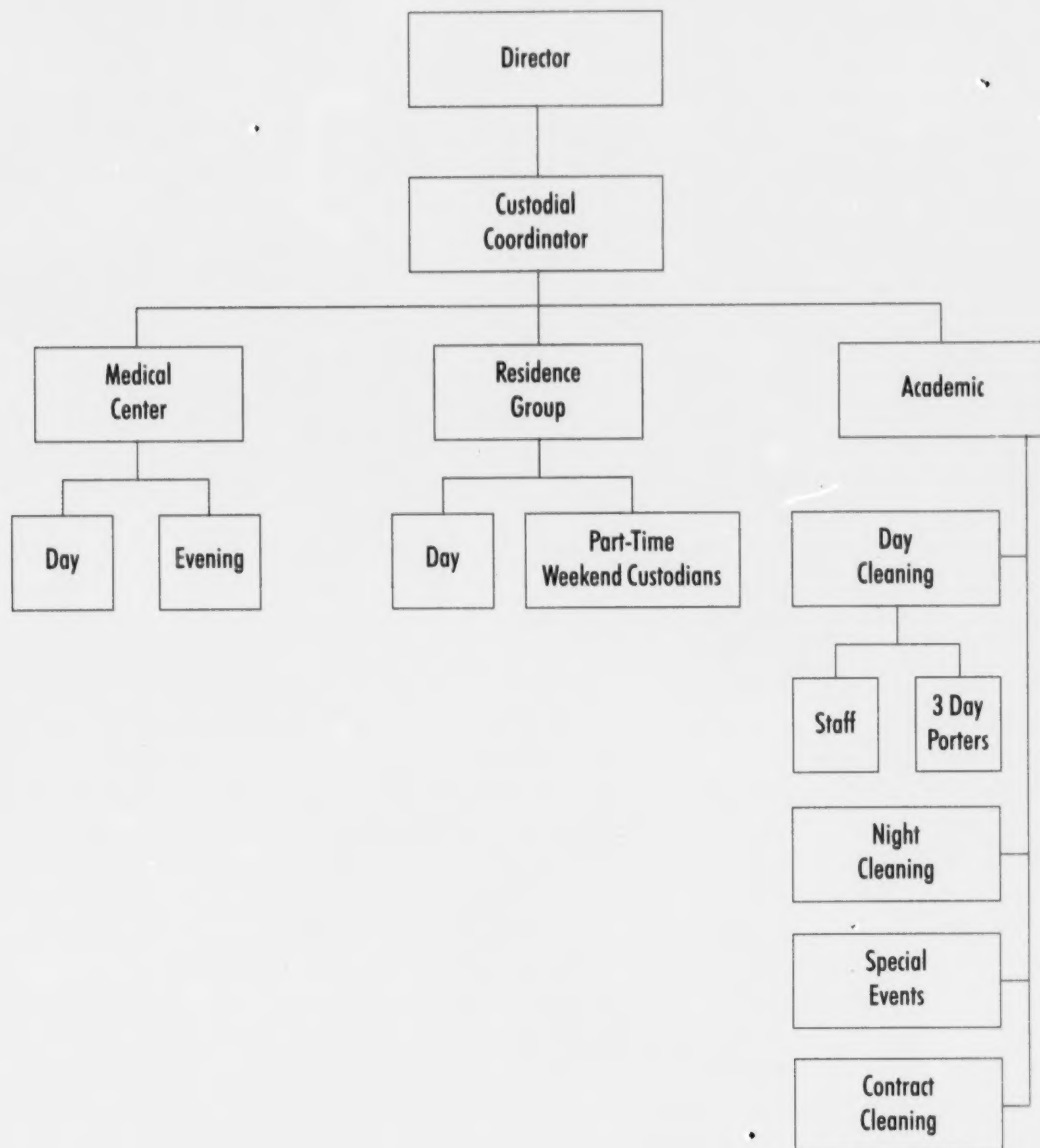


Figure 44 Georgetown Cleaning Department—1993 Reorganization

the cleaning being done by contract, and 65 percent by in-house labor. Three daytime custodial positions were also converted to day porter positions. Each porter was assigned to circulate through a cluster of buildings, checking and stocking bathrooms, and responding to emergencies. Their work hours were staggered to ensure coverage throughout Main Campus until 6:00 p.m.

Impacts

We had confidence in our analysis of the custodial operations on campus; however, we found that implementation was a new ballgame. We briefed the Human Resources department on the results of our study and discussed a strategy to implement our plan.

Union: First, we notified the Bargaining Unit (District 1199E-DC, Health Care Workers Union, S.E.I.U.) of our plans. We then met with and sent letters to all the custodians, informing the most junior among them that they would be moved to the night shift in accordance with the union agreement. We did not expect the furor that ensued. This was a major change for the workers, who were dismayed by the layoffs. Georgetown University's Division of Facilities had never laid anyone off before. For years, employees were told by the Human Resources office that, aside from disciplinary separations, they had a job for life. Now they were being told that times had changed. The custodians organized workers from the other trades, along with Georgetown students, faculty, and staff, and marched in front of the university's main administration building. Led by union leaders, they marched into the President's office. To defuse the situation, we published a letter indicating that, although we were going ahead with the night cleaning plan, we would take volunteers for night duty. This relieved the tension somewhat and demonstrated that we were willing to listen. Next, we met one-on-one with all the custodians and found the volunteers we needed.

Negative Acceptance: In July 1993, we kicked off our night cleaning operation. Most of the custodians were unhappy and felt that we had been insensitive to their professional and personal needs. Their anxiety spilled over to the zone and shop employees, who were concerned about their own job security. We received many nasty phone calls from faculty members who felt that our plan was unfair and that it would not work. Some complained that night cleaning posed a security risk. We promised to control the keys and that staff would lock the doors when they finished cleaning. We received a letter from the dean of one of the colleges condemning the whole plan as a bad idea. Still, we were convinced we were doing the right thing and we persisted.

Customer Expectations: One thing we had not taken into account were the personal services provided to various staff and faculty on campus. Many of our custodians had cleaned the same space for years and had become friendly with the occupants. As a result, they performed personal services for many of these folks, such as making coffee in the morning, walking the dog, running errands—services of which we were unaware. Faculty and staff realized that implementation of our plan would cost them the personal service they had come to expect. We guaranteed that we would still be responsive to their

cleaning needs, and that the level and frequency of cleaning would remain the same.

Training: Training was a major issue. Over the past several years we have dramatically increased the amount of training we offer. Many custodians were unaware of new cleaning techniques and products. Most supervisors had never attended training seminars or cleaning conferences off-campus where they could meet their peers, share professional information, and learn how other organizations solved problems. The International Executive Housekeepers Association conducts a 330-hour supervisory program, which is taught in the Arlington, Virginia public schools. Two of our younger supervisors expressed a desire to participate in that program, and their interest and commitment encouraged five other supervisors to enter the program. Additionally, while continuing the custodial audit, we began to familiarize every supervisor with the APPA custodial guidelines. We felt that if the supervisors understood the guidelines, they would be more likely to invest in what we were doing.

Personnel Issues: Everyone who volunteered to work the night shift had a reason for doing so: to accommodate a second job, to get away from a particular supervisor, to have what they perceived to be easier work or more freedom. Whatever their reasons, each person working this shift had to completely change his or her lifestyle, adjusting transportation, child care, and sleep habits. Our night supervisors had to be firm, understanding, and adaptable. The night cleaning manager had an easy-going, patient demeanor and listened to the workers; whereas, his immediate subordinate area supervisor was more firm and demanding. This proved to be a good mix of leadership styles. These two individuals worked one-on-one with each employee, coaching, counseling, and disciplining as necessary. They also responded to each customer complaint and requirement.

The shift to night cleaning affected most of the custodians by redistributing the workforce. As we filled night shift positions with volunteers, we backfilled the vacancies that resulted from their moves, in accordance with the union agreement. This caused quite a bit of disruption and unease among the custodians, and it took almost a year to normalize everything.

Transition Period: We began planning our custodial cleaning changes in March 1993, with actual implementation scheduled for July 1993. During this time, we met with our customers to allay their concerns and assure them that our plan would work. Concurrently, we briefed each custodial group on the reasons for the reorganization and the expected impacts on them. We also talked with the shop and zone maintenance personnel in order to quell rumors and calm anxiety. It took 90 days to do all this.

Supervisor Involvement: Each group administrator and all custodial supervisors needed to understand the plan thoroughly in order to become invested in it. Long-time supervisors had difficulty understanding the need for the changes. Many of them had worked in the same building for years and did not want to move. This required one-on-one meetings with each. They had to recognize the need to continue being responsive to customer needs, which meant they would have to be more flexible and adaptable than ever before. Not surprisingly, we found that junior supervisors (those with under five years' service at Georgetown) were more receptive, as several of them had experienced downsizing in other organizations. They were more willing to take risks and to view the change as a challenge that could make things better for everyone. At the end of the 90-day transition, almost all the supervisors supported the reorganization.

Benefits Of Reorganization

Improved Security: The first six months of the reorganization were difficult. Many of the staff and faculty remained critical of the change. They found fault with everything our custodians did and complained that theft was rampant. We kept daily inspection sheets, which we reviewed. These sheets proved invaluable whenever questions arose about the times that specific offices were locked and unlocked. In one specific case, there was a computer theft from the university's flagship building (which houses the Executive Vice-President's office). One of our night custodians reported to the Department of Public Safety that someone was occasionally sleeping in a closet in the building. Public Safety followed up on this, and found that the individual was a former student who had dropped out of school several years earlier and had an apartment not far from the university. The metropolitan police were informed, searched the apartment, and found 20 personal computers. Checking the serial numbers, they found that all had been stolen from Georgetown University. Once this was made known to the staff and faculty in the building, customer complaints waned. The faculty and staff began to see the benefits of having custodians in the buildings at night.

Improved Communication with Union: An unexpected benefit of the reorganization has been improved communication with the union. Since the 1993 encounter with the union leadership, we have instituted a union delegates committee which meets quarterly, where we discuss issues and upcoming events that might become contentious. This committee has proven to be an excellent communications forum and has been instrumental in averting controversy.

Decreased Disturbance of Occupants: Occupants now arrive in the morning to a clean workspace and are not disrupted by custodians trying to clean.

Improved Cleaning: When custodians cleaned during the day, they were often asked to come back at another time because they were interrupting customers working at their desk or holding meetings. Consequently, cleaning was inefficient and some spaces did not always get cleaned. Custodians working at night are not hindered in their cleaning and customers are not disturbed. Custodians can actually clean more space in less time. In fact, our cleaning has improved.

After-Hours Presence on Campus: In an emergency, such as a flood, custodians report the problem immediately and request help with the clean-up. For example, one night a water line to a unit ventilator in the science building froze and burst. Custodians working in the building detected water coming from the floor above. They investigated, found the water line break, and reported it immediately. If they had not been there that night, the flood would have caused much more damage than it did. Additionally, during winter storms the night custodians are available to shovel snow and spread deicing material at building entrances.

Measurement and Satisfaction

To measure customer satisfaction with our services, we conducted a customer survey in March 1995, and a second survey in March and April 1996. In addition, to measure employee perceptions and attitudes about their jobs, we administered an employee survey in November 1995.

Method: We mailed customer satisfaction surveys to 359 faculty and staff members (targeted by name) and 207 students throughout the university. The survey was designed to be completed quickly during the regular work day. It elicited relevant data to help us measure customer satisfaction, and it provided an opportunity for customer comments. The form was pre-addressed for return to the Director of Facilities Management. The respondent would complete the form, fold it, and deposit it in the nearest campus mail drop. We reviewed every completed form.

Results: Twenty-one percent (119) of the surveys were returned with 70 comments. Approximately 75 percent of the staff, faculty, and students surveyed indicated that they were satisfied with the service they received. Two areas that surfaced as needing improvement were bathroom care, and vacuuming and dusting of offices. The employee survey was completed by 100 percent of the employees on hand the day the survey was issued. Its purpose was to measure job satisfaction, and perceptions of the work environment and the organization. Results indicated that 76 percent of the custodial workforce were satisfied with their jobs and enjoyed working at Georgetown.

Follow-Up: To close the loop with the respondents who made comments, a letter was sent to each, thanking them for their participation and helpful comments. The letter stated that someone would contact them to continue the dialogue. We then requested that group administrators make contact and that a series of ongoing customer review meetings be held within the department to check the progress.

Results

It has been five years since we set out to change the way we provide cleaning services to the university. It has been a constant challenge requiring consistent, patient determination to achieve our main department goal of improving customer service. As described earlier, the faculty and staff strongly objected to the changes at first. They now applaud what we have accomplished. The dean who sent the letter deriding our plan recently sent us another note acknowledging our achievements and praising the cleaning. Now it is common for our department to receive letters of appreciation for the services we provide.

The challenge for the future will be to keep supervisors informed and remember that custodial cleaning, by its very nature, must always return to the basics. We must continue to train, retrain, inspect, and evaluate; otherwise, we lapse into complacency.

The Future

The future is exciting. We will continue to stress professionalism by focusing on individual appearance, courtesy, and knowledge. We will expand our training program even further, and encourage our employees to pursue their education and training. We will benchmark our work with the goal of steadily improving our service. And finally, we will continue to remind our employees, as well as Georgetown University's staff, faculty, and students, of Facilities Management's mission: "To provide a building and service environment conducive to comfortable living and learning."

Case Study: The Toledo Experience

Judy A. Stead

History of Building Services Innovation, University of Toledo, 1992–1996

I came to the University of Toledo's custodial department from the "outside"—the label we university types give to the private sector. I brought experience from the cleaning industry and had been trained to think like a businessperson. My burning desire was to bring that quality of business-like thinking to the department. I knew it would be challenging to move a group of 100 people in that direction.

But I believed strongly in the importance of the work of the custodian. There was and still is a deeply felt respect for these individuals who add so much to the quality of workplaces all over the world. It is often dirty, cold, wet, and lonely work with little recognition or appreciation and, sadly, sometimes even rudeness from those they serve. Custodians are a study in motivation; it takes a special kind of person to do this day after day. What makes a person want to do an excellent job when the work is often undone before it is completed?

One thing was certain—state finances would be driving lots of changes, and it was my responsibility to pilot the department through the difficult times ahead. In the private sector, the customer is the lifeblood of the company. They determine whether the company will remain in business for another year! When I arrived at the University of Toledo, there was already an awareness of the customer and the importance of customer service. It just didn't have a name and no one talked about it. The department also had a large group of supervisors who functioned independently of each other with little communication among them. When asked to define the supervisor's job, they said that they carried a clipboard to write down complaints and to "put out fires." Obviously we had some work to do in the areas of communicating and team building.

Our departmental change process took place over a four-year period. During this time, department goals focused on *accountability* and *building trust*. In order to hold ourselves accountable, the management team created department systems and structures to ensure clear expectations for staff and customers while building trust and respect among all parties. In the process we learned the meaning of persistence, consistency, and risk-taking. Depart-

ment innovations required flexibility and support from upper administration, vendors, and other departments. Stephen Covey, author of *The Seven Habits of Highly Effective People*, calls it the concept of interdependence. No real change takes place without it.

You'll notice that the steps we went through are the same as if we had developed a staffing model using the APPA custodial staffing guidelines. Had we been aware of them and the data available, we might have not had to reinvent the wheel. Of course, observing the similarities in the methods certainly underscores how good the guidelines are, since they did it like we did! Following are the 14 steps we took in our restructuring.

1. Inventory and Analysis of Space

Our first step was to find out what we were doing each day. We measured the square feet serviced by the department and then labeled space as categories: restroom, public areas, classrooms, offices, etc. Once we knew this about ourselves, we changed our name from Housekeeping to Building Services. With the challenges facing us in the future, we could no longer afford to provide the typical housekeeping services of washing dishes, making coffee, and watering plants. It was a way of drawing a line to separate the past from the future. It was meant to enforce the message that change was afoot.

2. Standardize Service Levels

Next, we wanted to measure how much time was being devoted to each category of space within each custodial work schedule. The only measurement we could devise was a time study of the entire department. Armed with only a stopwatch, floorplan, and clipboard, managers learned every task for every custodian in their assigned area. Some of the custodians liked the attention; some were nervous. For the most part, managers believed in the process but hated the exercise. They did love the confidence gained as a result. It is definitely what you would call a love/hate activity.

By now we had accumulated a lot of data—square feet, floor plans, work schedules, and time studies. We needed to apply the information. We began by comparing the time our custodians spent on cleaning a space, e.g., a restroom, to the time listed in the International Sanitary Supply Association (ISSA) guidelines. Then we identified discrepancies. These comparisons made us realize that more changes were necessary. We began planning new work schedules based on the time study comparisons.

To recap:

- Perform time study, i.e., measurement of time to perform duties for each kind of space within each assigned area
- Establish frequency of each duty
- Compare University of Toledo times to ISSA standards

- Prioritize categories
- Program staff based on factors of time studies, space designation, and priorities

When we had just about completed this project, we were made aware that a drastic budget reduction was about to affect us. By this time, we had the inventory and analysis of space available for our use. We changed our original work schedules to accommodate the reduction. Our supervisors had their leadership skills tested and honed on a daily basis. However, the outside pressures of the budget cuts helped the managers to bond. Tough times can bring a group together. We needed each other's support because it soon became apparent that we were going to have to take risks and be innovative. Meanwhile, contract negotiations began, and there was the usual polarization that occurs during the process.

The result of the reduction was that labor had to be shifted in order to equalize the work schedules and service the priority areas. Employee work schedules and assignments were filled under the UT-Labor Bargaining Agreement. In essence, we were turning the department inside out and starting anew. We began this enormous undertaking by creating notebooks that contained all job schedules for every zone. The job schedules were based on the groundwork data of inventory and analysis of space and time studies performed earlier. We placed the notebooks in each manager's office, and staff were given the opportunity to preview all work schedules. Finally, a two-day period of custodial bidding for the work assignments took place, with the subsequent changes and personnel moves occurring the following week. We took advantage of the rebid opportunity to completely rethink the way we did business. As a result of the reprogramming, we now had staff available for the specialty crews and floaters.

3. Establish Third Shift Floor Crews

During the completion of Steps 1 and 2, it became apparent that certain tasks were better suited to third shift scheduling. We made the decision to enlarge the third shift and to create dedicated floor crews. Benefits of such crews include:

- Elimination of the need for purchase and storage of expensive floor buffers, etc., for each building. In the past, equipment had been used by any custodian who requested it. Without accountability, equipment was not properly maintained and most of our inventory had fallen into disrepair.
- Elimination of the need to store expensive floor sealers, wax, and strippers in each building. Each year hundreds of gallons of such chemicals were wasted as they became outdated.
- Elimination of the noise and mess of floor work during business hours. Such work is distracting to offices and classrooms and also obstructs traffic.

- Standardization of technique, chemicals, and supplies. Prior to the reorganization, every custodian performed floor work his or her own way and there was no standardization of chemicals.

We developed extensive training programs for the hard surface floor crew and for the carpet crew. As a result of one-time money received mid year, we were able to purchase state-of-the-art equipment and place it in the hands of these crews. Part of their training each year includes the proper care of equipment. This equipment is now inspected monthly by the third shift manager. Since the staff feels a strong sense of ownership, the equipment is well maintained. As these well-trained, well-equipped crews moved from building to building without interruption during the third shift, productivity and appearance levels improved.

We created other third shift teams and encouraged them to be innovative in their approach to tasks and challenges. These teams have:

- Performed studies on equipment. The teams regularly evaluate new equipment by contacting the vendors and asking to test various models. The teams have created their own evaluation forms which they use to critique each test machine. Each year we test "robots" and cost out efficiency. The team ordered a brush that takes the place of machine pads. Instead of ordering and storing hundreds of black, green, red, and white pads and expending the labor required to inventory, they store and then change pads sometimes nightly. Now one brush serves all purposes. After two years, the brush still shows little sign of wear!
- The teams have created customer notification forms and forms for evaluating efficiency each night and currently. The teams are completing a handbook that contains building specific information such as a time and chemical use analysis for each floor. This information will then be used to design the monthly work plan, schedules, and chemical/supply orders.

4. Establish Floater Program

Another result of the reprogramming and subsequent rebid was the creation of a "floater" team. We designated floaters for each zone as well as campus wide floaters to cover for sick leave, workers compensation, ADA accommodations, vacations, and special projects. While the number of floaters available does not cover all absences, the floater system does promote consistency. The department had always utilized a few floaters, but lack of accountability allowed the floater position to erode into a spot for poor performers. Floaters frequently were even able to avoid even the annual evaluation due to a lack of facts regarding what they were doing. Other staff grumbled about the lack of care for their areas while they were out on vacation or sick leave.

The management team drew up a job description that detailed floater performance expectations, and they devised an evaluation system that pro-

vided monthly feedback regarding floater performance. Once we had a floater team in place, we encouraged this team to provide input into the evaluation forms and they also forwarded many other suggestions such as equipping each building with a designated floater cart and supplies thereby eliminating wasted time in locating these items. The end result: the department has enjoyed the utilization of a floater team that is effective and accountable.

5. Standardization of Custodial Carts, Supplies, and Chemicals

The reprogramming and retraining required as a result of the rebid process identified another area for action. As staff moved into different positions, feedback to management was that there were several differences within our zones and buildings. The custodian who formerly worked in building "A" and used brand "x" chemicals naturally wanted to continue using "x." The only fair solution was to initiate a study in preparation so that we could standardize chemicals. We established a team of custodians from the various zones to study the situation and make recommendations. Not only did we study chemicals, but the entire system for ordering had to be evaluated. At the time, procedures called for the department to turn over a purchase request to the Purchasing Department. The low bid vendor was awarded the business and the result was *waste*. For instance, staff pointed out that the low bid trash can liners may only cost four cents per liner, but because the liners were so thin, staff used two or three. Since there is extra labor involved in placing extra liners, plus the expense of the actual liners, some simple calculations proved that the low bid was not saving the university money.

The department began a program of educating and actively interacting with Purchasing. The first step involved tours of each zone. Through the years, staff teams have regularly met with the director, vendors, and buyers to forward results of their studies.

The result is that your staff will better understand the process. The complexities of calculation of chemicals and supplies became readily apparent to staff involved in the studies so they have a better understanding of this issue. After all, supplies are the custodian's "tools." It is natural that they would want to have a choice in selection. Several years ago, staff criticized the choice of rubber gloves, mop heads, liners, and cleanser—and rightly so. Today if a member does not like the selection of chemicals and supplies available, he or she is invited to serve on the chemical evaluation committee.

Recently we successfully completed a 12-month chemical product study. During that period, staff identified chemicals that performed to their standards. Performance as well as cost factors were evaluated. These formulations then became the basis for the bid specifications along with our expectations regarding service. That same team is now presenting the new chemicals to the entire department and is also making an effort to "sell" other campus departments, because our new contract includes a price break on volume purchasing. The benefit to the university is that duplication and

waste have been eliminated. We have reduced the number of items in our toolbox, and that has saved both time and money for several departments at the university. Chemicals formerly delivered in 55-gallon drums are now packaged in 5-gallon containers, thereby eliminating the possibility of Workers Compensation claims associated with handling the drums. In addition, the 5-gallon per drum traditionally wasted as a result of not being able to access the bottom of the container is eliminated. Staff now have the tools they need to serve the customer economically and effectively.

6. JIT Supply Program

Once the audit of the supplies and chemicals was completed, we were in a position to streamline the entire system of ordering, warehousing, and delivery of these items. We asked ourselves, Purchasing, and the vendor why the department was involved in the business of warehousing and delivery when our mission is cleaning? As labor resources tighten year after year, it seemed prudent to focus on our specialty. Through partnership with our vendor, we initiated the first Just-in-Time (JIT) delivery program in this area. As a result our supplies and chemicals are delivered directly to designated custodial closets in the various buildings within 24 hours after staff faxes the order.

We also utilize a paperless invoice system. The process has evolved into a fine system that is a win-win for all parties. Other universities are now using our JIT program as a model. Recently, a nearby medical college joined us in the program, and the savings resulting from volume purchasing have reduced UT costs by 3 percent. The bottom line for the university is that:

- Building Services was able to relinquish 30,000 sq. ft. of warehouse space
- Building Services was able to relinquish a van
- Building Services was able to relinquish a delivery person
- Building Services is able to better utilize custodial space throughout campus because less storage for supplies is required
- Staff is able to provide more consistent service because there is no wait time for supplies and tools
- Duplication and unnecessary waste is eliminated
- Because each department orders for itself, the time consuming clerical and accounts payable work involved in back-charging has been eliminated
- Formerly, weekly management time was devoted to inventory control in the various warehouse points on campus. That time is now utilized for staff development and training to better serve the customer

7. Train and Develop Managers

Previously, managers described themselves as people who carried a clipboard and put out fires. Each manager was assigned to a zone and ran the zone independently with little or no interaction or effective communication. A management team was established and this group then set about creating

a mission statement for the department. Regular weekly meetings created an opportunity for communication and joint problem solving. Several professional instruments were employed as tools to improve skills in the areas of trust and interpersonal skills.

The concept of interdependence among zones was stressed as an objective. A Performance Management Program helped the process along by establishing monthly coaching sessions. The managers were held accountable for meeting specific objectives, including developmental activity. The university enjoys easy access to an excellent continuing education program, so the entire team often attended seminars that could lead to certification programs in management related fields. This required real commitment on the part of those who participated because course work involved evening and Saturday attendance. Their reward was greater competency, confidence, and possible promotion.

8. Train Staff

As managers became more effective supervisors, they identified the need for a comprehensive training program for the custodial staff. A committee of custodians was formed to forward recommendations and to provide input on the modules as they were designed. Modules were designed around department priorities: restrooms, public areas, classrooms, office areas, floor care and recycling. Managers had observed that while staff observed department safety guidelines in their presence, not all staff did so when on their own. It was decided that the training program would focus on safety and explaining the "why" governing safety guidelines. Tasks were broken into individual objectives and the appropriate mediums were utilized for teaching those objectives. Some modules of the training program were relegated to slides and others to video. For instance, portions of the program devoted to OSHA MSDS requirements were better suited to slides because as our committees study and change chemicals over the years, a new slide can be created to quickly modify the presentation.

The management team previewed each module along with a representative from Safety and Health and our union, the Communications Workers of America (CWA). Suggestions were turned into modifications and the final modules presented to staff by zone. This training was well received by the custodians. Feedback forms completed at the close of each module revealed that staff learned several new facts and that the training made them feel more professional. Today they are more supportive of the safety regulations. The training has also resulted in clarifying department expectations regarding the cleaning process and it is an important step toward standardization. The real bottom line of any training program is increased productivity, fewer injuries, and providing better service for the customer. We're on our way!

9. Evaluations

Performance feedback is at the heart of effective management and staff satisfaction so the management team designed a performance appraisal process that would promote regular communication between the manager and custodian. The monthly inspection was already in place and it provided an opportunity for a short coaching session. Formal appraisals evolved to include a form that encourages the custodian to provide feedback regarding the manager's performance. This process has had the desired effect of opening up communications between custodian and manager. In the process, managers learn more about their strengths and weaknesses so they, too, become more effective.

10. Hiring and Orientation

The Custodial Department is designed as an entry level position, so normally there tends to be a steady turnover of staff as individuals move on to other positions. Efforts to training staff and managers can be quickly negated if turnover consists of a steady influx of poor candidates. We sometimes found ourselves with these circumstances. A proactive approach was needed—one that would allow the department to hire the best candidate. We first educated ourselves through continuing education course work, identified the problems, and then planned. Targeted reform areas were:

- Application process
- Clarification of roles within Personnel and the department
- Interview process and legal considerations
- Police check
- Reference check
- Structures for handling paperwork
- New hire orientation
- New hire evaluation
- Interaction with other campus custodial departments
- Utilize temporary help pool to screen candidates

Because of the many procedures involved and because of the legal considerations, an entire handbook is devoted to this process. The book explains each procedure and provides easy reference. The notebook is a living document and is regularly streamlined, updated, and changed. It serves the department and the university well.

While each step of the process has helped to eliminate problems, the last two on the list above were critical. We have funds for temporary help to cover absenteeism resulting from Workers Compensation, illness, and vacation. We developed a process whereby a successful interview candidate is first hired into this part-time temporary help pool. The department provides orientation, training, and regular evaluation and coaching. The em-

ployee is carefully evaluated in several areas: attendance, work ethic, attitude, team cooperation, appearance, ability to follow directions, etc. Supervisors as well as coworkers provide regular feedback regarding performance.

At the three-month evaluation point a decision is made to promote the individual to the next level of the temporary category. During this period the individual may be offered a permanent, full-time position, at which time a 90-day probationary period takes effect and the individual's work habits continue to be carefully observed and documented. The documentation provides the important legal backup required should the individual's termination occur. Custodial staff have bidding rights interdepartmentally on campus which provides another avenue for hiring within Building Services.

We brought Residence Life and Student Union into the process in order to standardize hiring across campus. Although these departments are represented through service on the interview committee, Building Services maintains control of the actual process, orientation, and screening through its temporary help program. Those departments forward requests for permanent hires through Building Services. In this manner, we are able to hire and place into the campus system only those candidates who meet the established standards. The ultimate goal is to effectively hire and train individuals so that the department provides a ready pool of qualified workers for internal promotion within the university. In recent years, six custodians have moved on to promotions, and we have several who are preparing themselves by taking computer courses.

11. The Standard Operating Procedures Manual

The purpose the Standard Operating Procedures Manual is twofold: to clarify steps for handling various administrative tasks and to save time. Managers and team leaders daily encounter a myriad of administrative tasks. Procedures change and it is easy to become lost in the maze and time is wasted in trying to find someone with the answers. The management team decided to create an SOP as tool for the supervisor's toolbox. The manual is designed for ease of use and quick reference. The 20 topics covered include:

- Just-in-time supply order/delivery process
- Uniforms
- Various department policy statements
- Discipline procedures
- Keys
- Inspections
- Overtime procedures
- Fire and tornado procedures
- Procedures governing the departmental reports

The SOP is key to standardization, and standardization is important because it helps to ensure that all staff are treated equitably and fairly. When

everyone follows the same guidelines, there are also fewer problems for the departments with which we interact.

12. Specifications for Construction Standards

Many cleaning problems and the subsequent poor appearance are caused by inattention to the long-term care factor during the design stage of a building. Improper selection of color and material for flooring, walls, and restroom items can result in escalating expenditures for maintenance and cleaning as the building ages. As a department, we gathered ideas and comments from staff and then worked with the Capital Projects department to develop a set of specifications that would promote educated decision making during the design stage of new construction and renovations.

13. Transitional Work Program

Another area identified for reform was attendance. We observed the negative effects of absenteeism on morale and service. It is a stress producer. We developed a plan to attack absenteeism on two fronts. First, we enlisted the counsel of Personnel and the support of the Union in moving forward with stringent adherence to disciplinary action as laid out in the Agreement. Managers must document and forward requests for discipline when appropriate. The result of this effort is that our rate of absenteeism has decreased from twenty absences per day to ten.

The second front involved identifying the root of claims stemming from Workers Compensation. One year the department had ten staff absent on leave. The total of those absences plus vacation and sick leaves was crippling our operation. We began by looking at the injuries and identifying ways to eliminate the causes: steps for dumpsters were put into place, ergonomic equipment was purchased, and we emphasized safe practices for lifting materials and emptying trash. We still had to deal with the issue of how to prevent those recently returned from Workers Compensation leave from re-injury or worse, permanent injury. One idea was to place an individual in a less physically strenuous position in another department until the injury was fully healed. Personnel joined the effort and enlisted the expertise of the Ohio Bureau of Compensation.

It was then that we learned of Transitional Work Programs (TWP) and, using Building Services as a pilot, we formed a committee to create a process for handling the needs of these employees. Because the TWP is a closely monitored process, employee progress is carefully documented, thereby protecting both the employee's health as well as the university's interests. Instead of closing off employees from any employment, those recovering from injuries are provided an opportunity for work-hardening at a pace determined by a physician. The individual receives some valuable cross-training and the department receives additional labor for the duration to TWP. Did this have the desired effect on reducing absenteeism? During the past year

we had one short-term leave, and one long-term leave that resulted in a permanent disability determination. In such cases, the department is authorized to replace the individual.

14. Recycling

Since custodians handle trash removal, it seemed a logical step for Recycling Operations to merge with Building Services. Although we project that recycling will eventually lighten the custodial workload, today those tasks still require additional time and effort from the custodian. The incentive for custodians to participate is shared revenue. This revenue allows the purchase of equipment that otherwise would not be available to the department. In addition, the third shift crews utilize the Recycling vehicles for their needs that otherwise would not be in use during those hours. Therefore, it has been important to involve the custodial crews in every step of the implementation phase, a phase just recently completed.

Current plans for developing a recycling team of custodians who will have certain recycling public relations responsibilities. In essence, these individuals will monitor, educate, and otherwise work toward increasing participation in the program.

We have already reached the original target of 25 percent diversion of waste stream and with the participation of this team, we believe we can significantly increase the diversion rate.

Case Study: The Wooster Experience

Julia Wertz

History of Building Services Change, College of Wooster, 1992–1996

The following is an overview of the staffing realignment in the Custodial Services Department at the College of Wooster, which consisted of 66 employees in December 1992. This included the director, administrative assistant, three supervisors, three assistant supervisors, and three part-time employees. The remaining 55 full-time employees were engaged in the custodial effort. This figure does not include numerous students available during the school year and considerable numbers of food service people who helped us during break periods.

We are responsible for cleaning approximately 850,000 square feet. The first shift primarily cleans the residential areas and the third shift is responsible for cleaning academic and office areas. Second shift, which is the only one in operation seven days a week, takes all the maintenance calls and has cleaning responsibility for special events. Various shifts have assignments in the Student Center and in the Physical Education complex, which include game set-ups and care of the swimming pool.

The June 1995 custodial roster showed 48 employees consisting of the director, administrative assistant, four supervisors, one assistant supervisor, one equipment repair/maintenance person (who also orchestrates furniture and mattress movement in the residential areas), two part-time employees and 38 full-time employees. The buildings, except for certain private offices, are cleaner than before, and we receive more compliments from our customers. How did this happen?

Shortly after I was hired in March 1992, the administration agreed that the custodial staffing should be reviewed. My background is a mix between in-house and contract cleaning. Most of the academic custodians had been in the same building assignments for years. This meant, in many cases, that the building custodian had more contact and better rapport with the building occupants, including faculty, than they had with the custodial management. All the supervisors and assistants were promoted from among the custodial ranks and had been at Wooster for five to ten years. Progressive discipline or documentation were not evident. There wasn't, and still isn't, any union organization at the college.

The decision was made to provide information to the administration concerning various changes which could be made in the custodial services department. The vice president of finance said he was willing to consider various plans concerning changes in the custodial department as long as it did not involve hiring more custodians. He was assured that this would not be the case.

We were familiar with the APPA *Custodial Staffing Guidelines*, as some of our supervisors had attended a seminar featuring the book. Therefore, we decided to invite the coauthor and editor, Jack Dudley, to help evaluate the operation. He visited the campus in October 1993 and helped us assemble a space inventory, appearance audit, and a staffing calculation, using the APPA methods. The survey indicated that the custodial department was indeed overstaffed. The calculation also provided the administration with staffing requirements at the five APPA levels of clean, from which they could determine what appearance they wanted on the campus. The administration endorsed a general appearance the APPA Level Two, and agreed to bring the department into line by the process of attrition. This is a slow and frustrating process, since once the new cleaning assignments were developed and personnel reassigned there were staff in excess of the needs. One of the assignments for that group was a floor care group that provides interim and final refinishing project on all campus floor surfaces. The dissatisfaction with the new work assignments by some of the employees perhaps contributed to an acceleration of the attrition process.

In November 1994, the president of the college convened several ad-hoc committees to look over various situations at the college. One of the agendas was the reduction of cleaning frequencies in office spaces so as to ensure they were all treated alike campus wide. The committee did, in fact, send a recommendation to the President to reduce the office cleaning frequency to a generally lower, but common, denominator. Initiated in January 1995, this reduction eliminated the need for two full-time custodians.

Two supervisors elected to relinquish their positions. One became the equipment maintenance person and the other designed and implemented a successful floor and carpet care program for our facilities. This provided an opportunity to hire two more supervisors. The hiring of a new shift supervisor from outside of the college has done more to help turn this department around than any other single factor. It appears that there is no factor more important for carrying out the stated goals than good first-line supervisors. These supervisors like to be out among the people, set clear expectations, give timely and appropriate feedback on performance, and see to it that their employees have everything they need to do a good job.

Operational Benchmarking, the Organizational Foundation

To ensure that an in-house custodial operation is operating at full efficiency, comparisons to industry standards must be made. It is not enough to do it

once as a beginning of a change process. It must be a continual process. The APPA *Custodial Staffing Guidelines* are one benchmark. Full knowledge of all departmental costs must be developed and then compared to industry standards. We also take bids each year from outside contractors as another benchmark. With this knowledge, the departmental budget is prepared and closely monitored.

In order to maintain an efficient operation, department supervisors must stay abreast of current issues and developments in the industry. It is important these leaders have an accurate knowledge of the past and present, and a vision of the future for their department. To help achieve this, an organization of custodial colleagues was established with neighboring liberal arts colleges. Meetings are held periodically where each college is toured, followed by a round table discussion to share information. Networking with those in the same field is an important way to find avenues to do tasks more efficiently and to keep informed about what is happening. So is listening to the ideas of employees in the custodial department.

Standard Operating Procedures

Most custodians initially were doing their job by whatever means available. Each, of course, believed their way was the right way. After all, this had seemed to work for years, so any change was deemed unnecessary. Once the building square footage and types of areas to be cleaned were determined, it was time to develop some specifications as to how best to carry out the plan.

Training needed to be standardized and the plan was to film supervisors/custodians doing set routines for various areas such as restrooms/bathrooms, offices, stairwells, lounges, etc. Procedures including mopping, vacuuming, changing light bulbs, and cleaning floors/carpets/upholstery were included along with proper dilution ratios and safety procedures. A written plan of the work and frequency to be completed in each area was given to the employee responsible for carrying out the assignment. These plans are updated on a regular basis depending upon whatever changes have occurred.

Work Flow

The work flow of each employee and type and amount of area being cleaned was considered. Each area was then surveyed to insure that employees had the appropriate custodial cart. Each cart was stocked with suitable supplies and materials with which to clean. This helped to streamline the numerous types of products being used. Custodial closets were cleaned out and stocked according to need. New products being considered are first tested by the custodians who then turn in a written evaluation sheet. People experience more of a sense of control when they are included in the decision-making process and choices are offered.

Equipment

Each area was assessed to ensure adequate equipment was on hand to facilitate the cleaning. All equipment was inventoried and a preventative maintenance and replacement plan was put in place. This procedure helped to reduce equipment abuse and loss of time due to broken equipment.

Floor, Carpet and Upholstery Cleaning

A frequency schedule and a separate crew were set up to handle the care of floors, carpets and upholstery. This enhanced the appearance of the facilities and helped to reduce costs. The custodian(s) in each building are still responsible for daily spot cleaning of carpets.

Quality Control and Communications

Operating on the belief that efficiency starts with an understanding of what each employee is doing and how well they are doing it, each supervisor was instructed to walk through their areas of responsibility at least twice daily. They are to make visual and voice contact with each employee at these times. Supervisors keep daily logs of events which are turned in to the director of custodial services once a week. Each supervisor conducts weekly safety meetings which are also used for employees and supervisors to communicate with each other in a group setting. Supervisors perform written monthly inspections for each area of responsibility. These inspections are gone over with each employee who then writes his or her comments.

Supervisors were encouraged to follow written progressive discipline efforts to help employees comply with expectations. Sick time use and tardiness were greatly curtailed by these measures. All facets of the custodial operation are being computerized which eliminates much of the paper work and needed storage. Contact people in each area of responsibility are visited regularly by the custodial director and supervisors to insure that all custodial work is being done satisfactorily. Effort is made to respond to concerns in a timely fashion. Follow-up is done to make sure the area of concern was handled appropriately.

Celebration

The employees in our organization are our most important resources. Improving and maintaining employee morale is a key concern. It is beneficial to mark the times when stated expectations/goals are met, or, just to celebrate because the department made it through another day. Some of the events organized in the custodial services department are:

- Carry-in meals including inviting college President
- Box lunches provided by vendors giving selection from which to choose
- Cans of soft drinks/ice cream delivered on hot days

- Picnics
- Acknowledgment of good attendance
- Gift certificates supplied by vendors
- Cookies brought to each employee on special days such as Valentines Day
- International Executive Housekeeping Week participation

It is recommended that these events be done on an intermittent basis so employees will not begin to expect them. Of course, there are "thank yous" given on a daily basis for a job well done.

Closing Thoughts

The application of the APPA guidelines can assist any custodial department in planning and implementing changes. Some of the areas to consider in the transition plan are completing an audit of the facility, selecting levels of cleanliness desired, training staff, obtaining adequate supplies/equipment, developing a standard operating procedure, clearly communicating the goals, and following through to see that the stated goals are attained. Many custodial departments have been through various changes. Before embarking on a change, network with those leaders who have undergone these transitions to learn what the various experiences have been. This can help avoid costly mistakes and prepare you for the emotional factors that any change may precipitate. It takes people of courage to leave the safe port of status quo and set sail into the change experience.

See you on the other side.

Case Study: The Georgia State Experience

James E. Sears

Georgia State University is an urban institution of higher learning located in the heart of downtown Atlanta, Georgia. There is a unique mix of buildings that comprise the 3.5 million-square-foot building inventory. Some of the buildings have been designated historical landmarks, and the university is expanding at an ever-increasing rate. The student population is approximately 25,000 and is as diverse as our building inventory. The campus typically is in operation from 6:30 a.m. to 11:00 p.m., Monday through Friday. On weekends the buildings open at about 7:30 a.m. and, depending on the activities on campus, may stay open until 11:00 p.m. or later. But no matter what activities are on campus during the weekends, the campus population rivals the weekday traffic.

In 1995, a Continuous Quality Improvement initiative was undertaken in the Department of Finance and Administration. This happened at a time when the university system was forced to critically look at all its operations to determine funding sources for budget redirection. This environment caused the custodial management staff to begin asking questions on how to best analyze our operation for the purpose of rightsizing our labor and supply levels. We formed a committee to research these issues and to utilize the *Custodial Staffing Guidelines* manual by APPA.

The APPA guidelines outlined procedures that would:

1. Give a process that allows management to take a detailed look at our campus as it relates to space inventory (space audit).
2. Measure the current level of cleaning.
3. Provide the framework for our Quality Assurance Program.
4. Set cleaning standards and priorities.
5. Help to develop cleaning strategies.
6. Provide methods of using tasks to compile some assignments rather than strictly using square footage.
7. Help in defining reasonable cleaning expectations by level of cleaning and category of tasks.

8. Give administrators a more accurate picture of the effects of funding and cleaning levels.
9. Conduct a labor audit.

Space Audit

Once we obtained a copy of the most recent space inventory report, we checked it for accuracy. Any discrepancies found were reported to the appropriate department. This process gave the management staff the ability to note any differences that one typically finds in buildings and that can affect the productivity of workers.

This was one of the most important parts of the audit because it showed the actual use of each room of the building. This data is the foundation upon which much of the other technical data is based (Figure 45).

Cleaning and Labor Audit

The next step in this process was to conduct a cleaning audit. This process introduced our management team to five levels of clean as outlined by APPA. The team then utilized a cleaning audit form as prescribed in the APPA guidelines (Figure 46). This system of qualifying the cleaning output of the Custodial Unit seemed to be a logical tool to use as the unit's Quality Assurance Program. After the cleaning audit of the campus, the team discovered that our unit performed between Levels 2 and 3.

At this point, the labor audit was done for each building showing the labor necessary for all categories by the desired level of cleaning (Figure 47). This report was then compared to the actual labor distribution of the unit (Figure 48, Staffing Guide).

Cleaning Strategies

At this point in our audit, we discovered that we were actually staffed for Level 3 cleaning, but in many areas we were cleaning at Level 2. The team then worked on establishing cleaning priorities (Figure 49). The Custodial Management Team had committed to establish levels of the operation to:

1. Determine staffing needs accurately to level of cleaning.
2. Measure the quality of cleaning.
3. Establish cleaning priorities and standards based on APPA recommendations.

A presentation was made to the vice president and assistant vice president of finance and administration and facilities planning. For the first time a relationship was developed that gave both sides the necessary data to make critical decisions in the custodial area. For instance, if we have budget reductions, we can surgically make cuts to minimize the impact on our operation. On the other hand, if cuts are very drastic, there is an opportunity to show what the real effect of the cuts will be.

Building Audit Sheet for General Classroom Building

Building Name						
Use of Space	Treat Like	Sq. Ft.	# Rooms by Type	# Rooms by Classification	10% for Audit	Sq.Ft. for Audit
Offices	Offices	42,989	254		25	4,231
Entrances	Entrances					
Lib/Open Areas	Lib/Open Areas					
Lib/Study Rms	Classrooms					
Classrooms	Classrooms	54,493	83		8	5,252
Storage Areas	Storage Area	744	8		1	93
Meeting Rooms	Classrooms	3,340	7		1	477
Labs	Classrooms					
Elevators	Offices	300	8		1	37
Stairwells	Stairwells	15,124	4		1	3,781
Showers	Restrooms					
Restrooms	Restrooms	5,560	20		2	556
Meeting Rooms	Classrooms					
Lounge	Classrooms					
Locker Rooms	Restrooms					
Loading Dock	Loading Dock					
Corridors	Corridors	62,778	10		1	6,277

Figure 45

Another impact the audit had was giving the team the ability to develop job assignments tailored to each building, keeping in mind the established cleaning level. Consequently, each employee now has a work assignment to follow on a daily basis. Therefore, the daily inspections conducted can be very specific to the work tasked out on that day. Managers also have the ability to select work critical to areas where employees have to double up due to circumstances.

Measurements of Results

The Quality Assurance Program we utilized comes from the cleaning audit in the *Custodial Staffing Guidelines* process. This was taken a step further when a computer program was developed that is specific to our campus and blends with the QA Program. This gives us the ability to have a graphic representation of the unit's output. This offers a tool for employee development by measuring performance. It is a check to ensure that the supervisory inspections are accurate. This also gives the unit trainer the opportunity to analyze the work assignments for effectiveness, to look at employees for technical competency, and to take corrective measures from a training perspective.

The number of complaints has decreased significantly under this system and our level of cleaning has improved. In many cases we are cleaning at the mid-point of Level 2. By defining what the unit does on a daily basis, our customers have a better understanding of what we can and cannot do. This has helped tremendously in developing the expectations that our customers have of us.

One of the most important realizations we were able to measure was the fact that, because of the operating time of the university, the traditional benchmarks such as cleaning per square footage and cost per square footage sometimes do not apply. Having 25,000 students spaced on 3.5 million square feet of campus proposes unique staffing operations. This is due to the fact that public area restrooms, classrooms, and meeting rooms may need to be recleaned several times daily. Thus, we had to assign some work by task rather than square footage. This situation also prompted the management team to develop benchmarks such as custodial dollars versus student credit hour and student population. We hope that these additional benchmarks will reveal valuable new information as it relates to better defining Custodial Services at Georgia State University.

AUDIT FOR OFFICES**BUILDING** _____

	Weighting Factor	1	Level 2	3	4	5	Item Ram Score (factor x level)
Furniture	30						
Trash cans	15						
Floors	35						
Blinds	3						
Window Ledges	3						
Telephones	10						
Door/Frame	2						
Walls	2						

TOTAL RAW SCORE _____

RAW SCORE / 100 = LEVEL _____

Note: Standards for Determining Standards See Attachment**Notes:****Figure 46**

STAFFING LEVEL SUMMARY					
	Level 1	Level 2	Level 3	Level 4	Level 5
Classrooms	9,000	17,000	27,000	39,000	46,000
Entrance way	4,000	7,000	12,000	21,000	35,000
Locker/Changing room	10,000	10,000			
Office	10,000	18,000	32,000	53,000	87,000
Public (circulation) area	8,000	21,000	31,000	38,000	42,000
Research Laboratory with hazardous waste	5,000	7,000	8,000	11,000	28,000
Research Laboratory without hazardous waste	9,000	16,000	24,000	42,000	203,000
Stairwell	8,000	15,000	17,000	25,000	75,000
Storeroom	77,000	208,000	388,000	1,551,000	3,360,000
Washroom	2,000	3,000			

Figure 47

APPA STAFFING GUIDE**Building General Classroom Building**

Level	1	2	3	4	5
Offices	4.3	2.4	1.3	1	.50
Study Rooms					
Storage	.01	.01	.01	.01	.01
Meeting Rooms	.40	.40	.40	.40	.40
Lounge					
Corridors	8	3	2	2	1.5
Restrooms	3	2	2	2	2
Elevators	.03	.03	.03	.03	.03
Stairwell	2	1	1	1	1
Classrooms	6	3.2	2	1.4	1.2
TOTAL	24	12	9	8	7

Figure 48

Cleaning Priorities

Priority I — Restrooms

In this category, we will identify the most heavily used restroom on campus. We will then set up a schedule to close these areas and clean/disinfect. How this translates into work loads for each shift is as follows.

1st and 2nd Shifts: Restrooms (high traffic areas only) are closed. Trash is removed, sinks/mirrors are cleaned, paper products are replenished, toilets/urinals are cleaned and floors are mopped.

3rd Shift: The entire restroom will be deep cleaned and restocked. Cleaning level 2.0 range.

Priority II — Entrances, Hallways, Elevators, Meeting Rooms, and Administrative Area

1st and 2nd Shifts: These areas will be checked and cleaned as needed during these shifts. Entrance windows, mats, and door thresholds will be cleaned. High traffic hallways will be dust mopped and spot mopped. Meeting rooms will be cleaned as needed and key administrative areas will be checked and cleaned when needed. Cleaning level 3.0 to 3.5.

Priority III — Classrooms, Lounges, Stairwells, Public Areas in Suites

1st and 2nd Shifts: All of the above areas, especially classrooms and lounges, will have trash and all debris according to schedules that should keep these areas in acceptable condition throughout the 1st and 2nd shift.

3rd Shift: This shift will be responsible for all the deep cleaning in the above stated areas. Cleaning level 3.3 to 3.8.

Deep cleaning will consist of a scheduled general cleaning once weekly in which all highlighted areas are detail cleaned. Floors and carpets will be deep cleaned as needed, but not less than once semi-annually.

Figure 49

APPENDIX A

Custodial Requirements and Unique Factors

Alan S. Bigger, J. Kirk Campbell, Paul Courtney, Jack C. Dudley, Jonathan L. Ford, Robert A. Getz, and Judy A. Stead

Early in the original committees' discussions about guidelines, members realized they had to address the question as to whether consistent guidelines could be developed in spite of institutional differences. Since no two institutions are really alike and because the differences in cleaning times provided by contributing members was probably due to "unique factors," it was concluded that establishing consistent guidelines was the most important goal to achieve. The team then determined that there should be a discussion about unique factors in order to reinforce the importance of the guidelines. We reasoned that you would have no purpose to review your operation unless the staffing in any given area departed notably from a prediction made with the APPA guidelines. Therefore, a listing of potential reasons for differences would serve a useful function.

A number of "subfactors"—training, age and condition of the facility, level of cleanliness desired, equipment used, etc.—can dramatically affect "hard" numbers assigned in the matrices and must be considered when evaluating the staffing calculation. Accordingly, we offer additional "Unique Factors" to this appendix. We also determined that training was an important factor and should be given its own chapter.

The Custodial Cart

The custodian's cart is an essential part of the job. Think back to your last stay at a hotel or motel. Every custodian had a cart that was placed at the entrance to the room being cleaned. The carts were one of the establishment's "advertisements" to you, the customer, that you were receiving special service. To draw customers, a hotel or motel must not only *be* clean but must also be *perceived* as clean.

It is the reverse situation that affects productivity. When you know you are expected to project cleanliness and efficiency, you adopt attitudes and work habits to fulfill those expectations. When a custodian is responsible for 25,000 to 35,000 square feet (or more) of space each day, it is a long walk

back to the closet for chalk! If you have a custodial staff of "walkers," your initial inquiry should be aimed at the carts. A brief checklist follows.

- Does each custodian have a cart?
- Is the cart stocked with all the tools necessary to accomplish a day's work, including safety goggles and gloves?
- Is the cart clean, marked, and tidy?
- Has the custodian been instructed on how to use and maintain the cart?
- Does the supervisor know how to use and maintain a cart?
- Does the custodian take the cart to each job site?
- Does the custodian have to leave the cart to obtain forgotten or replacement materials?
- Are all chemical containers clearly labeled with contents and directions for use?

Custodial Work and Storage Space

Facility design should always include appropriately sized and located work and storage areas for custodians. Unfortunately, these areas often double as a pipe chase or other utility access, or include phone and electrical panels. The spaces are also often threatened during remodeling to accommodate such needs as new ADA restroom requirements or to include space for computer network wiring or other hardware. Because the allotted space is frequently very small, even an inward-opening door can significantly reduce usefulness of the space.

There should be at least one custodial work space on every floor level. The room should allow sufficient space to store equipment—a minimum of 6 ft. by 10 ft. is an appropriate guideline. It should include shelves or cabinets for materials and supplies, and a floor-level service sink to provide water and allow for equipment cleaning. (Plumbing code requirements may include backflow preventers on the faucets.)

Each work space should be centrally located to support approximately 20,000 square feet of space to be cleaned and should open into a corridor. The work space must be maintained for the exclusive use of the custodians for reasons of inventory and equipment control and to eliminate potential exposure of other persons to custodial cleaning chemicals.

The allocation of additional space for central equipment storage or as a staging area for trash collection or recycling is an important consideration. A number of factors may be involved to suit your individual facility needs. Some examples are:

- How many custodial work spaces must a central storage area support?
- What are your facility procedures for central supply stores and delivery?
- Is this a location for storage of specialty equipment (flood abatement, project work, etc.)?

- Are other established storage sites located nearby?
- Would the lack of such a storage room decrease productivity?

The following table suggests a sliding scale of requirements for custodial work space, central storage, and trash/recycling space that could be incorporated into design guidelines for new construction and remodeling projects.

BUILDING AREA	UP TO 20,000 SQ. FT.	20,000 - 30,000 SQ. FT.	30,000 - 150,000 SQ. FT.	OVER 150,000 SQ. FT.
CUSTODIAL WORK ROOMS	1 @ 80 sq. ft. See Note 1.	60 sq. ft. per 15,000 sq. ft. of building area or portion thereof. See Note 2.	60 sq. ft. per 15,000 sq. ft. of building area or portion thereof. See Note 2.	60 sq. ft. per 15,000 sq. ft. of building area or portion thereof. See Note 2.
CUSTODIAL EQUIPMENT & STORAGE RMS	Included in Custodial Work Room	1 @ 100 sq. ft.	1 @ 100 sq. ft.	2 @ 150 sq. ft.
TRASH STORAGE ROOMS	1 @ 60 sq. ft.	1 @ 80 sq. ft.	1 @ 100 sq. ft.	1 @ 150 sq.

Note 1: If building has more than one story, provide an additional Custodial Work Room with floor sink with a floor area of not less than 48 sq. ft. on each of the other levels.

Note 2: Distribute area in 60 sq. ft. increments on each floor level.

The provision of a staff locker or changing room area must be considered in a similar manner. It is most productive to have custodians report for work in the basement of a building to which they are assigned. However, some campus facilities have central locations tied to a network of buildings by tunnels, a system that allows custodians to report to one location and efficiently walk to their work areas without a loss of productivity. Once again, an individual decision is necessary. If hazardous cleaning chemicals are used, not only must the custodian wear appropriate safety gear, there should also be an eye wash within close proximity.

Supervisory Space

Supervisors at all levels must be provided with some space in which to conduct campus business. All too often, this need is forgotten or space so designated is reallocated. A private space is required for first-line supervisors to meet with employees. Supervisors who are required to do paperwork must be given space and tools. Providing at least minimal space for the supervisors and their employees—ideally in the building to which they are assigned—demonstrates the institution's commitment and respect for custodial operations.

Regulatory Requirements

Right-to-know, hazardous waste, recycling, affirmative action goals, OSHA, Americans with Disabilities Act, etc., are now terms in our professional vocabulary. Regulatory requirements tax not only the budget but also management and supervisory time. However, the problems of compliance with regulatory requirements are unique to each campus. They are not within the scope of this publication and were not considered in determining staffing criteria.

When the Cleaning is Scheduled

Decisions regarding hours of service for custodial operations must be made by considering many variables. These decisions are influenced by campus expectations, size, traffic load, hours of operation, and budget constraints as well as the local labor market. In some instances a single shift operation may be adequate. However, customers often require more than eight hours of service to meet their needs, and thus a multiple shift arrangement may be necessary.

When thinking about changing service hours, consider the attitude of the custodial staff toward the proposed change as well as the impact of the change on them. Also, preparations for making adjustments in shift hours should also include plans for significant interaction of the staff to be affected. Selling the idea on the front end to both the custodial staff and the campus customers will be valuable in making this type of change successful. Please refer to the Georgetown University case study in Chapter 17.

Day shift service hours offer the advantage of an excellent opportunity for custodial staff to interact with customers. Because of this, there are usually fewer theft accusations against the custodial staff. Customers are less likely to rush to blame the custodians if they have a personal relationship with them. Because customers see the custodial staff working, they know the work is being done and tend to experience a higher degree of satisfaction with the service. Custodial employees likely feel more a part of the facilities management physical plant team, as there is interaction with the other shops during the day shift. Customer service requests are handled more quickly when the custodial staff is able to communicate directly with customers. Staff is available to recheck priority areas during the day. In addition, the custodial staff is more able to participate in institutional and departmental functions.

There are some disadvantages of day shift service. Building occupants may feel a sense of ownership of the custodial staff. This may cause custodians to lose their focus on cleaning in lieu of performing other non-related tasks requested by customers. Also, some areas are less available for cleaning, due to traffic or occupancy. In addition, opportunities for project work are often delayed until breaks in the academic calendars. Noise and odors from work may be considered disruptive by building occupants.

The *evening shift* offers fewer interruptions due to foot traffic and occupancy. The custodial staff also provides some degree of building security, which deters theft and vandalism. Other benefits are likely during these hours: employee parking may be in greater supply, workers can have quicker access to buildings due to less vehicular traffic, project work can usually be done with more flexibility, and student workers, a valuable source of labor, are generally more available during the evening shift.

A disadvantage to evening shift service hours is that there is less customer and facilities staff interaction. Customer requests take longer to communicate to custodial staff than on the day shift, thus slowing response time. Staff is at potentially greater security risk at night.

Night shift does provide the opportunity to have a dedicated and specialized work crew. Those crews offer the advantage of increased productivity and enable a department to place state-of-the-art equipment in the hands of a few rather than try to equip each building. Dedicated crews also allow intensive and focused training to help them become truly productive. There is usually much quicker access to buildings due to less vehicular traffic and more available parking. As with the evening shift, the custodial staff provides some degree of building security to deter theft and vandalism. Project work can be done with greatest flexibility.

A disadvantage to night shift hours is that there is virtually no interaction with building occupants or the rest of the facilities staff. Also, staff security is at potentially greater security risk during these hours. The shift differential, if applicable, is an added cost as well as extra energy to light buildings at night.

Evening and night shift hours are not for everyone due to individual idiosyncrasies. Some areas, such as financial services, may not be accessible to the custodial staff during these shifts. Customer requests take longer to communicate to the custodial staff, thus slowing response time. Custodial staff is not available to respond to priority areas during the day, which may necessitate adding additional staff during the day shift to cover these situations.

Two or more shifts may be required to meet the requirements of the campus. Considerations must be given to duties such as locking and unlocking buildings, meeting setups, furniture moving, etc. Custodial managers must also evaluate the supervisory needs of each shift. These will be determined by the number of staff on the various assigned shifts and the type of work required.

Standard Operating Procedures

The SOP Manual is a powerful training tool that can help you establish consistency, credibility, and confidence within your workforce. In creating a procedures manual, it is first necessary to identify the procedures that will be defined. Recalling typical conversations and questions that occur routinely during the course of a month provides a list of frequently asked questions

that will serve as a basis for the kind of information that needs to be included in the Standard Operating Procedures Manual.

The objective is to eliminate guesswork, state expectations regarding procedures, and decrease errors. Standardization is promoted and reinforced and time formerly spent in trying to obtain answers to "How do I . . . ?" or in correcting mistakes can now be utilized in more productive pursuits. Here are some examples of topics that may be included:

- Just-in-time supply order/delivery process
- Uniforms
- Various department policy statements
- Discipline procedures
- Keys
- Inspections
- Overtime procedures
- Fire and tornado procedures
- Procedures governing the departmental reports

An SOP Manual provides something you can hand to the new employee during orientation. Consistency within the day-to-day operations helps to bring about trust and respect by ensuring that staff are treated appropriately and held to the same standards and procedures. To achieve this result, lead custodians, supervisors, and team leaders need a carefully planned "toolbox." The toolbox is built around the job description and can prevent future problems and misunderstandings. One way to handle this annual checkup is to ask the custodian to write down what she or he currently does during the course of a week. Compare that to the formal document and resolve discrepancies. Within the job description itself, it is helpful to use categories to separate the types of duties.

Ownership and Productivity

Management, in general, has been undergoing major restructuring during the past several years in an effort to make their organization more viable in this era of flexibility in coping with our changing environment. Custodial units have been on the "cutting edge" of this change, as establishments reorganize and review programs that may be completed more efficiently and more cost-effectively. Historically, it has been the custodial operations that have suffered both first and most severely when organizations "downsize" and reduce custodial service levels and frequencies in order to reduce overhead and remain efficient and competitive. Educational facilities have not been immune to this changing environment. On the contrary, they have been on the forefront.

Managers have become familiar with programs designed to assist in the restructuring process. They are referred to routinely by their acronym,

i.e., TQM (total quality management) or BPR (business practice reengineering) or any one of a number of other programs. The purpose and goal of each of these programs is similar—to do more with less, and to do it better and more cost-efficiently. Simple, right? At least in theory. Conceptually, however, those managers and departments that have failed to adapt their business strategy have found how easily they can be replaced. There is always the specter of contract services looming on the horizon. Theoretically, as custodial staffing is reduced in numbers, the frequency of service is accordingly reduced and the size of the service areas for the remaining staff is increased. As staffing is reduced, the need for supervisors and assistant managers is diminished, increasing the workload on those who remain with the organization.

In simple terms, having reached this point, custodial operations has evolved to the theory of "ownership" where the custodian assigned to a designated area is *totally* responsible for the custodial operations within that area. Webster defines a custodian as "one that guards, protects, or maintains." The custodian of today assumes the "guardianship" and "custody" of the building where assigned. He or she now becomes more individually responsible for their area and must view the assignment as "their" area. The function is no longer just a job, it is now a responsibility. The custodian, in the course of his or her normal duties, must also establish a rapport with the occupants of the area in order for the custodian to become part of a "team" with the occupants, whom are now the custodian's customers as well as customers of the department.

Subsequently, the role of management and supervision has changed from previous definitions. Management and supervision now must establish the guidelines, procedures, and frequencies, properly train the custodian assigned to the area(s), ensure that he or she has the required tools and supports, and instill the confidence and pride of ownership. Management's ideal role in such a situation becomes one of a monitor—ensuring that expectations are met.

In order for such a program to be successful, management and staff must "buy-in" to the realization that the times have changed and that we must change our way of doing business. Taking pride in one's work is necessary for the ownership concept to be successful. Customer service and the desire to accommodate the needs of our customer is another essential ingredient. Finally, management must be willing to delegate part of their responsibility to the empowered custodians covering the areas. They now become a training coach and monitor, stepping in only when the performance level is below standard.

Ownership is basically the reliance upon each individual to perform to the best of their abilities on a routine basis, and having the responsibility to recognize and complete all necessary tasks satisfactorily. It is taking pride in performance and, to paraphrase the recruitment for the U.S. Army, "be all

that you can be." In actuality, it is not a new concept at all—just one lost in our culture for a time.

Environmental Factors

Each institution has its own idiosyncrasies and special factors that make it different from others. These elements often affect the staffing calculation, but they cannot effectively be included in the APPA custodial staffing guidelines because of the enormous variety of situations to be found in institutions across the country. For example, unusually long travel times to and from buildings would vary too widely between institutions to cover properly in a standardized matrix. Similarly, the complex situations possible in considering the nature of buildings that have poorly placed elevators, too few elevators, or no elevators at all make standardized comparisons difficult.

A special environmental factor that cannot be condensed into a standardized matrix is the local climate. Compare an institution that experiences mild weather with one that has a long, snowy season. In the mild climate, the rain tends to wash outside walking surfaces, so that what is tracked into the buildings is mostly water. In the snowy climate, snow removal and sanding crews are actively applying traction materials to those same types of surfaces. The abrasives are carried into the buildings on people's feet and quickly wear off the floor finish. Additional snow does nothing to wash the sand away. Instead, the material is held in place and quickly accumulates. There it remains until there is a hard rain or it is mechanically removed by workers. Ice melting chemicals, often spread on entry stairs and building approaches, also get tracked into the buildings. They dissolve floor finishes all the way through to the actual floor surface. Finally, icy accumulations slow down work times by forcing the custodian to walk cautiously on his or her route from the building to the outside refuse containers. Abrasives may be present in other climatic regions too. Desert areas with lots of wind-blown sand have similar problems. Smoggy areas have a constant fallout of abrasive particulates, some of which also chemically degrade the surfaces.

An environment with a lot of abrasives in it, whether naturally occurring or caused by work crews, creates a significant amount of additional work time. This must be factored into any staffing analysis for it to be accurate. Too often, managers and supervisors simply guess at the impact these factors have on their operation. However, it is strongly recommended that research be conducted with working custodial staff to generate some actual work times.

Surface Life Cycles

Just as with an unusual abundance of abrasives in the environment, a normal soil load allowed to accumulate over time degrades the surface at an accelerated rate. The key factor is the number of times the dirty surface is walked upon while the soil is present in significant amounts. The mechani-

cal, grinding action of the footfall, in combination with the abrasives, produces substantial wear. On hard floors protected with a finish, the finish is worn away. In high traffic dirty areas, such as busy entryways in a snowy climate, it may be difficult to prevent the finish from being worn away entirely between finishing cycles. When the finish is gone, all the wear and tear is borne by the floor material itself, hastening the day when it will need to be replaced. On carpeted floors undergoing this type of abuse, the soil penetrates to the lower fibers where a vacuum cannot remove it. The result is wear on the lower fibers and backing, shortening the useful life of the carpet.

Aside from pure abrasiveness, accumulations of soil on a surface presents another problem. Under the right conditions, a bond may form between the soil and the surface material that may be difficult to dissolve. The passage of time has a tendency to solidify such a bond, making its removal more and more problematic. A perfect example of this is hard water deposits in a toilet. Another example is an agent that stains carpet. With either type of situation, it is best to prevent the bond from ever forming by proper, frequent cleaning. Often, such cleaning frequencies are misinterpreted to be an extravagant use of time and resources with little payback. However, when the dirt is allowed to accumulate and it bonds to the surface, the surface material is often permanently damaged by the subsequent cleaning process. Infrequent cleaning tends to be a more severe, all-out effort to get an extremely tough job done in a reasonable amount of time. The damage results from two things:

1. *Scoring (abrasion)*, which destroys surface material and allows future dirt accumulations to bond more easily, thereby exacerbating the problem.
2. *Chemical destruction* through the use of harsher cleaning compounds needed to get the job done.

The surface degradation described above takes place when custodial staffing budgets are cut and cleaning frequencies are reduced. Thus, an administrative attempt at cutting costs through the reduction of custodial staff can prove to be much less effective than expected, especially in the long term. In the midst of a nation-wide deferred maintenance crisis in institutional facilities, to unknowingly add to that liability seems inappropriate. Administrators need to be educated about the indirect costs of this type of budget cutting, and should be provided the necessary surface life cycle information so that they can make fully informed decisions. Shortened life cycle cost estimates must be based on research conducted on the specific surface material in question. Carefully controlled laboratory conditions can quantify the wearing effects of different soil types and concentrations on certain surface materials. Research results can then be extrapolated to the real world of institutional facilities.

It may be difficult to develop a valid means of relating the laboratory results to the real world. There are a large number of variables that exist in

the typical institutional environment that are extremely challenging to measure. The most difficult component to determine is the actual soil load and type encountered in the institution's buildings. Of course, this component varies from day to day. Similarly, the traffic loads change with class schedules and seasons. Nevertheless, it is possible to get valid, coarse measurements by having an experienced custodial manager or supervisor estimate the effect.

Occasionally assistance can be obtained from the institution's researchers or students as a learning project. Possible sources of information specific to a particular product may be found at independent testing laboratories, or the manufacturers themselves. Usually they have already done much of the research during product development and may be able to provide information to facilities managers wishing to calculate increasing life cycle costs.

APPENDIX B

Space Classification

Jonathan L. Ford

During the early 1970s, there was a national effort, through the U.S. Department of Education and the National Center for Education Statistics (NCES), "to collect, analyze, and disseminate statistics and other data related to education in the United States and in other nations." To effectively accomplish that goal, it was necessary to standardize the methods through which postsecondary education facilities classified their space. The result of this drive was the 1973 *Postsecondary Education Facilities Inventory and Classification Manual*.

For 20 years, this manual served as the standard through which a majority of colleges and universities classified and inventoried their space. However, facilities planning and use continued to evolve, and there were amazing advances in computer software and hardware. The system presented in the manual gradually became less applicable to many state and institutional situations. As a result, many colleges and universities created, or were beginning to devise, their own unique classification systems. Difficulties with comparing facilities information were aggravated and continued to worsen as the years passed.

A 1992 update of the *Facilities Inventory and Classification Manual* was intended to improve the situation by once more providing higher educational institutions with a space classification system of superior utility and lasting value. The new edition was produced by a collaboration of the Working Group on Postsecondary Physical Facilities, a widely diverse collection of 20 individuals representing every aspect of higher education. The effort was enhanced with input from more than 200 other individuals from postsecondary education institutions and state higher education agencies, who reviewed and commented on the several drafts.

It is almost imperative for any institution of higher education that wants to a) take advantage of comparative data, b) produce facilities audits for maintenance or other purposes, or c) optimize the use of the educational space available, to adopt a classification scheme similar to that of the NCES *Facilities Inventory and Classification Manual*.

At present, there are a number of classification systems in widespread use that are different than the NCES version. APPA's custodial analysis and staffing guidelines have used an approach that is oriented toward the custodial perspective and, at the same time, makes an effort to accommodate the wid-

est variety of classifications in the simplest possible manner. Because of the generalized nature of the guidelines classifications, a custodial manager or supervisor inevitably gets involved in adapting the particular classification system used at his or her institution to the staffing guidelines classifications and matrices.

The following serves as an example of the thought process required to make such an adaptation work. Montana State University-Bozeman (MSU) was fortunate to have a regularly updated computerized space inventory database done in the 1973 NCES *Facilities Inventory and Classification* format. When *Custodial Staffing Guidelines* was published in 1992, it was used immediately to make staffing estimates. We set up a Lotus 1-2-3 spreadsheet that pigeonholed the many NCES classifications into the ten original APPA room categories. Some details are offered below to illustrate some of the decision making and assumptions that have to be made during the process.

APPA Matrix	NCES Classification (items in parentheses are MSU-created categories)
Classroom	110 CLASSROOM 115 CLASSROOM SERVICE 30 INDIVIDUAL-STUDY LABORATORY 350 CONFERENCE ROOM 523 ATHLETIC SEATING 550 DEMONSTRATION 555 DEMONSTRATION SERVICE 610 ASSEMBLY 720 SHOP 725 SHOP SERVICE
Entranceway	Since no NCES classification existed for entranceways specifically, it was decided that this APPA category should be lumped in with general public area (circulation).
Locker/changing room	Because of factors specific to MSU, this APPA category was lumped into the restroom classification.
Office	310 OFFICE 315 OFFICE SERVICE 410 STUDY ROOM 440 PROCESSING ROOM 650 LOUNGE 655 LOUNGE SERVICE 670 RECREATION ROOM 680 MEETING ROOM 685 MEETING ROOM SERVICE

APPA Matrix**NCES Classification (items in parentheses are MSU-created categories)**

	660 MERCHANDISING FACILITY 665 MERCHANDISING FACILITY SERVICE 730 STORAGE (MSU OFFICE SUITE)
Public (circulation) area	WWW CIRCULATION 620 EXHIBITION 625 EXHIBITION SERVICE 880 PUBLIC WAITING
Research laboratory	APPA had two different categories for research laboratories—with hazardous waste containers and without hazardous waste—while NCES had only one. Also, NCES distinguished between research laboratories and class research laboratory. Because of these differences, MSU treated any kind of containers lab space equally, as if it were a research lab without hazardous waste: 210 CLASS LABORATORY 215 CLASS LABORATORY SERVICE 220 SPECIAL-CLASS LABORATORY 225 SPECIAL-CLASS LABORATORY SERVICE 250 NONCLASS LABORATORY 255 NONCLASS LABORATORY SERVICE 530 AUDIO VISUAL, RADIO, TV 535 AUDIO VISUAL, RADIO, TV SERVICE 570 ANIMAL QUARTERS 710 DATA PROCESSING/COMPUTER 715 DATA PROCESSING/COMPUTER SERVICE 850 TREATMENT (MSU MICROCOMPUTER LAB)
Stairwell	This square footage was included in CIRCULATION in the NCES system
Storeroom	This square footage was included in the OFFICE category, due to the fact that there was little difference between the two in MSU's cutback treatment of these areas.
Washroom	The 1973 NCES system grouped restrooms in the broad category of YYY MECHANICAL. This was thought to be too broad from the custodial standpoint, so all restroom square footages and fixtures

APPA Matrix**NCES Classification (items in parentheses are MSU-created categories)**

were separated out by hand and tallied. Only two other categories, along with the custom restroom inventory, seemed to fit:

(MSU RESTROOMS)
525 ATHLETIC/PHYSICAL EDUCATION SERVICE
690 LOCKER ROOM

MSU-Bozeman Custodial Management perceived that there were a few important types of space that were not covered in the first edition of *Custodial Staffing Guidelines*. Large gymnasium floors and large library stack areas were missing, and these areas were considered to be quite different, in terms of their cleaning times, from any of the ten categories offered in the first edition. The solution was to obtain MSU time standards for these types of areas by actual on-site measurements. The result was the creation of a custom category and matrix, which was called "Extra Large Floors":

XL Floors

420 STACK
430 OPEN STACK READING ROOM
520 ATHLETIC/PHYSICAL EDUCATION
620 EXHIBITION

There were a limited number of NCES classifications that simply did not apply to a custodial staffing exercise. An example of one of these was the category, 050 INACTIVE AREA.

Similarly, there were some spaces that were not classifiable in the NCES system. These were lumped together in an UNDEFINED category and accounted for in the APPA system where it seemed appropriate.

Clearly, the process of mixing and matching two entirely different space classification systems requires a flexible approach. The many assumptions and interpretations made during the procedure must be based on some sort of logical rationale. These types of decisions ought to be made with an awareness that the whole process is, at best, an approximation. The real test comes when matrix formulae are used to generate cleaning times, and those times are compared against what really happens out in the buildings.

If the formula-generated times look skewed from what would be reasonably expected in reality, a search should be launched for the reasons. This is the part of the analysis that promises the greatest benefit. It forces a close look at the details of the operation. The discovery of a special consideration that was overlooked in the initial calculation for one type of space often applies to others as well. Once incorporated, the accuracy of the whole estimation system improves.

The critical issue is to keep the process dynamic and flexible. There are a multitude of factors to consider when going through this analysis. The search for ways to make the staffing estimates more and more sensitive to specific building and institutional factors must be ongoing. It is highly recommended that careful notes be taken to document the thought process behind the decisions. That way, future evaluations of the system will not necessitate trying to remember a line of reasoning long forgotten.

Of course, this new edition of the APPA *Custodial Staffing Guidelines for Educational Facilities* includes many more space classifications than the first edition, making the process of linking it to another space classification system much easier.

APPENDIX C

Standard Space Descriptions

Jack C. Dudley

Classroom with Hard Floor: Typical classroom with movable tablet arm chairs, teacher's station in front with table, chair, chalkboard. The room has vinyl tile floor, painted gypsum walls, a dropped ceiling, and recessed fluorescent fixtures. We included some glass in either walls or doors.

Entranceway: A vestibule with lots of glass. We included the area 10 feet outside the outer door as well as entrance mats to service. A fairly high maintenance area.

Locker/Changing Room: Originally this was combined with the shower, but too often the spaces are independent. Lots of steel lockers, wood benches, sealed concrete floor, painted gypsum walls, and exposed fluorescent lighting. Considered a health-sensitive area, so only two cleaning levels.

Office with Carpeted Floors: This was a large area (1,200 csf) to try to be representative of many offices. There were several small private offices, two groupings of four desks separated by upholstered dividers in the common area, and a small waiting area with three upholstered furniture pieces plus an end table. Painted gypsum walls, drop ceiling, and recessed fluorescent lamps.

Public (Circulation or Hallway) with Hard Floors: Vinyl tile floors, painted gypsum walls, and drop ceiling with recessed fluorescent lamps. There are telephones, ashtrays, water fountains, and trash containers. We used an inner hallway with no windows.

Research Laboratory with Hazardous Waste: This is a "constructed" area based on the laboratory without hazardous waste. We added researched time allowances for added trash pickup and lab sink cleaning. These activities make it a time-intensive area. The space contains lab work surfaces on wood benches with doors and drawers. Floors are vinyl tile, walls are painted gypsum, and ceiling is dropped with recessed fluorescent lamps.

Research Laboratory without Hazardous Waste: Same as above, but reduced trash pickup and no cleaning responsibility for laboratory sinks. This area nicely represents typical student labs.

Stairwell: We selected a bare-bones stairwell with concrete floors and steps, 2" pipe handrails, and an exposed fluorescent lamp. The cleanable square footage is the footprint area, what you would typically get from the plans.

Storeroom: Very bare-bones area with sealed concrete floor, issue counter, shelves, and exposed fluorescent lighting. These areas can be large, but typically custodians have little (if any) responsibility for them, which is reflected in the cleaning frequencies. This is a good type of space to "remember" custodial closets or storage areas.

Washroom: Typical, based on a side-by-side men's and women's pair. Standard fixtures, mirrors, electric hand dryers. Floors are tile, and walls can be tile or painted gypsum, partitions are painted steel. We have had comments that the allowed time is high (10 to 15%) and/or we should have used the fixture count method. The committee was concerned that washrooms could be short-changed and wanted to ensure that their recommendations allowed enough time. As with the locker/changing room, this is a two-level cleaning area.

Shower Room: Very typical. Tile walls and floor, painted plaster ceiling with safety recessed lighting fixtures. Two cleaning levels only.

Public (Circulation, Hallway) with Carpeted Floors: Another constructed area based on the surveyed hard floor area. Surveyed carpet care activities and times have been substituted for the hard surface activities and times. We've experienced good results using the data.

Office with Hard Floors: Based on the carpeted office, but with hard floor activities and survey times substituted for the carpeted ones.

Classroom with Carpeted Floor: Same as above.

Classroom with Carpeted Floor—Heavy Use: Cleaning chalkboard, dusting, emptying trash containers and pencil sharpeners, vacuuming, and spotting carpet are done twice daily at higher levels of cleaning to account for a second pass in a day.

Classroom with Hard Floor—Heavy Use: Similar rationale as above, but with hard floor activities.

Washroom—Heavy Use: Same as above, but washroom cleaning activities done twice daily.

Utility: Originally created for the little dormitory area with a small kitchen, laundry facilities, and a table. Vinyl floors, painted gypsum walls, and drop ceiling with recessed fluorescent lights. This room description can be used

to represent various types and sizes of kitchen areas. Also works fine with laundry areas only.

Vending: Also created as a dormitory space. Includes a number of vending machines and trash receptacles on hard floor. Works for similar type space in academic areas.

Dormitory Lounge: Carpeted area with upholstered lounge furniture, utility tables—generally where people gather to make a mess. The original description had some glass in the form of a TV screen and trophy case, but that doesn't introduce much error if you use it for spaces without.

Cafeteria with Carpet: Surprising how common carpet is becoming. The space includes many tables and chairs, since custodians typically aren't responsible for the food service or kitchen part. There are quite a few windows that need cleaning. The ceiling is a dropped one with recessed fluorescents. The survey times are for low or no service time cleaning and assumes the food service people clean the tables during normal food service hours.

Cafeteria with Hard Floor: This floor is a vinyl tile and was the space used in the survey.

Library with Carpet: Large, carpeted space with lots of the usual bookshelves—30-inch spacing so the survey times predict quite efficient cleaning using the wider vacuums. There is a checkout desk, study carrels, reading furniture groupings—the items you'd expect in a "standard" library. A large area of windows are included on two of the perimeter walls. The other walls are painted gypsum. The ceiling is dropped with recessed fluorescent lamps.

Library with Hard Floor: Same as above, except the floor is wood, tile, or other hard surface. This also is a "created" space.

Auditorium Foyer and Seating: The theater has vinyl tile under the seating with carpet runners in the aisles. The seating is upholstered. The lights in the theater, stage, and wings belong to the theater staff, and the custodial staff has no responsibility for them. The foyer is a carpeted space, painted gypsum walls, and dropped ceiling with recessed incandescent floods.

Auditorium Stage and Wings: The stage and wings have wood floors that are sanded and painted annually.

Gymnasium: Not too much about these spaces except they're big and political. The committee wanted to stick with the conventional wood flooring. They also wanted to include the center folding partition and the retractable seating because of their commonality. Since activities relating to them are mostly project, they don't usually interfere with predictions of daily cleaning

times. All major maintenance product suppliers recommend the project stripping and refinishing of the wood floor to be the 100 grit light sanding to remove one layer of finish followed by recoating with two coats of their proprietary urethane varnish.

Dormitory Washroom: The committee wanted the standard dormitory room to look much like a motel room with its attached washroom. They considered the only time they really needed the standard was when the rooms are actually used for housing transient guests. Institutions seem to have their own standards for the semi-annual cleaning following student departure. Thus, this is a fairly standard small motel washroom containing a vanity, commode, tub/shower, and tile on the floor and walls. We have heard the same observation about the times in this washroom being 10 to 15 percent too high, as with the other washroom.

Dormitory Sleep/Study: Carpeted floors and two single beds, two side tables, two desks, two chairs, etc. Only one window, outside door, and recessed fluorescent lamp, however.

Patient Conference Room: Similar space to a carpeted office, with desk, desk chair, three upholstered chairs, and a low table.

Patient Treatment Room with Carpeted Floor: A room with a curtained patient exam bed area. The remainder of the space has work surfaces and a sink, plus storage cabinets for medical examination tools and supplies.

Patient Treatment Room with Hard Floor: Same as above, but with a vinyl tile floor.

Nursing Station: A space with a large amount of counter work surfaces and cabinets for medical and clerical supplies. Essentially a working medical and record keeping area for two or more nurses.

Unassigned: Just what it says it is. It "remembers" the space until you have some type of responsibility for it.

Space Only, No Tasks: Used to remember areas such as large shops where your service responsibilities are not proportional to wall-to-wall square foot area. This space would typically be used in conjunction with the following category, "special tasks."

Special Tasks, Five Minutes per Square Foot: This has been used extensively in technical colleges, in areas such as automotive or print shops. They are large areas, primarily serviced by the students who are assigned there. The custodial staff has little responsibility except, perhaps, for cleaning a sink, restocking soap and towels, and removing trash. These are easy activities for

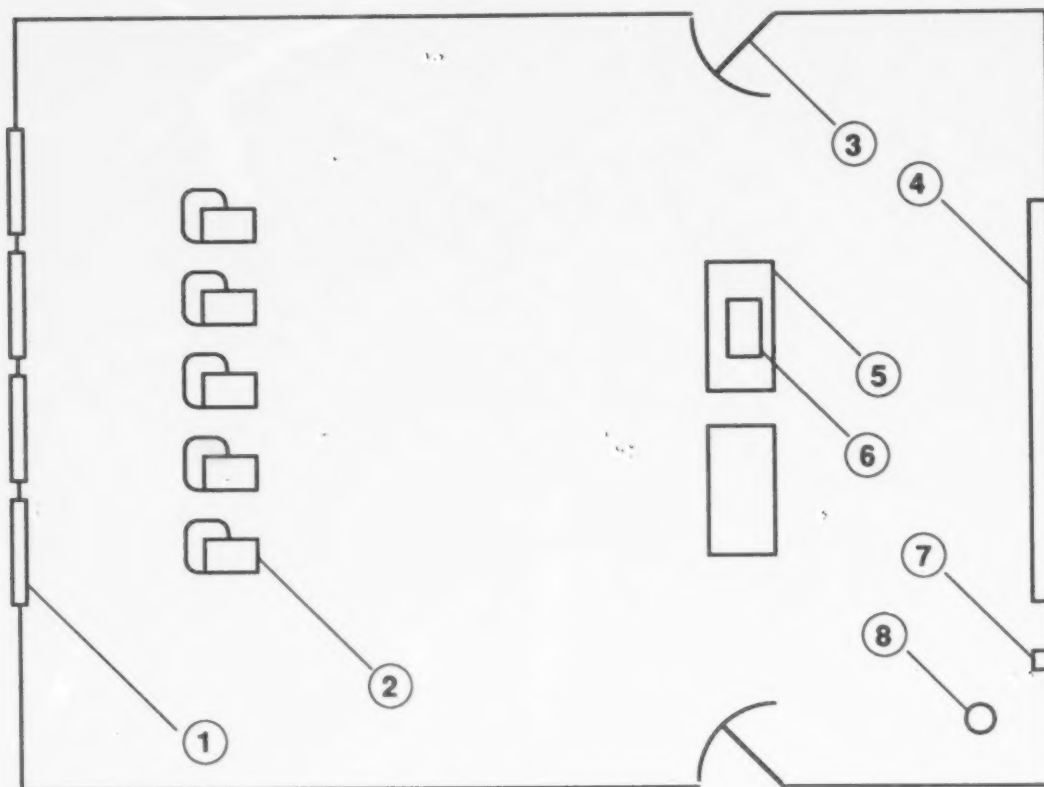
which to measure the time for locally. Say the supervisor determines 20 minutes daily, on the average, are adequate to perform the work in a given space. Then, if one task is selected in the "modify space category screen" (the program will give you up to three), that space should be given a unique but related (e.g. 202 and 202SP) room number and assigned 4 csf. The program will then assign 20 minutes to clean 202 and 202SP no matter how large 202 is, but, your assignable square foot total will match with the building inventory.

APPENDIX D

Standard Space Category Matrices

- Matrix 1: Classroom with Hard Floor
- Matrix 2: Entranceway
- Matrix 3: Locker/Changing Room Not Including Shower
- Matrix 4: Office with Carpeted Floor
- Matrix 5: Public(Circulation) Area with Hard Floors
- Matrix 6: Research Laboratory with Hazardous Waste
- Matrix 7: Research Laboratory without Hazardous Waste
- Matrix 8: Stairwell
- Matrix 9: Storeroom
- Matrix 10: Washroom
- Matrix 11: Shower Room
- Matrix 12: Public (Circulation) Area with Carpeted Floors
- Matrix 13: Office with Hard Floors
- Matrix 14: Classroom with Carpeted Floor
- Matrix 15: Classroom with Carpeted Floor — Heavy Use
- Matrix 16: Classroom with Hard Floor — Heavy Use
- Matrix 17: Washroom — Heavy Use
- Matrix 18: Utility
- Matrix 19: Vending
- Matrix 20: Dormitory Lounge
- Matrix 21: Cafeteria with Carpet
- Matrix 22: Cafeteria with Hard Floor
- Matrix 23: Library with Carpet
- Matrix 24: Library with Hard Floor
- Matrix 25: Auditorium Seating and Foyer
- Matrix 26: Auditorium Stage and Wings
- Matrix 27: Gymnasium (Wood Floor)
- Matrix 28: Dormitory Washroom
- Matrix 29: Dormitory Sleep/Study
- Matrix 30: Patient Conference Room
- Matrix 31: Patient Treatment Room with Carpeted Floor
- Matrix 32: Patient Treatment Room with Hard Floor
- Matrix 33: Nursing Station

Classroom with Hard Floor

**Construction**

30' x 40' (1,200 SF)

Gypsum walls, light semi-gloss paint

Exposed grid drop ceiling

36 recessed, two-tube 2' x 4' fluorescents

Vinyl tile floor

1 supply air vent, 18" x 24"

Features

1. 4 windows, 50 SF* total area with venetian blinds

2. 50 tablet arm chairs, movable

3. 2 36" doors, each with a 4-SF window

4. Chalkboard, 50 SF

5. 2 work tables*

6. 1 lectern*

7. 1 pencil sharpener

8. 1 wastebasket with liner

*Window ledges, work tables, and lectern total 40 SF of dusting surface.

Matrix 1 Classroom with Hard Floor

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Spot-clean walls and doors	D 3.90	W 0.78	M 0.19	S/A 0.03		3.90
Relamp	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	3.91
Clean chalkboards and trays	D 4.20	D 4.20	D 4.20	A/D 2.10	A/D 2.10	4.20
Dust flat surfaces	D 5.50	W 1.10	W 1.10	M 0.26		5.50
Empty waste containers	D 0.70	D 0.70	D 0.70	A/D 0.35	A/D 0.35	0.70
Empty pencil sharpeners	D 0.60	D 0.60	D 0.60	A/D 0.30		0.60
Sweep, dust-mop floors	D 16.4	D 16.4	A/D 8.20	A/D 8.20	A/D 8.20	16.40
Clean erasers	D 0.60	D 0.60	D 0.60	A/D 0.30	A/D 0.30	0.60
Adjusted minutes subtotal CSF/Custodian	31.99 15,755	24.47 20,597	15.68 32,143	11.64 43,299	11.04 45,652	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	
	M 0.30	A 0.03	A 0.03			
Dust blinds						6.30
Project-clean furniture and seating	Q 1.95	A 0.49	A 0.49			122.00
Clean trash containers	W 0.28	S/A 0.01	S/A 0.01	A 0.01		1.40
Dust vents	M 0.07	Q 0.02	S/A 0.01	S/A 0.01	A 0.00	1.50
Perform interim floor care	Q 1.76	Q 1.76				109.70
Strip/refinish floors	A 0.83	A 0.83	A 0.83	A 0.83		208.30
Clean windows	S/A 0.12	A 0.06	A 0.06			15.10
Project-clean light fixtures	A 0.78	A 0.78	A 0.78			195.40
Spray-buff/burnish floors	W 3.74	M 0.90	Q 0.30	S/A 0.15		18.70
Damp-mop floors	D 17.10	M 0.82	M 0.82	S/A 0.14		17.10
Adjusted minutes subtotal	26.94	5.70	3.33	1.13	0.00	
Total adjusted minutes CSF/Custodian	58.93 8,554	30.17 16,705	19.01 26,512	12.77 39,468	11.04 45,652	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

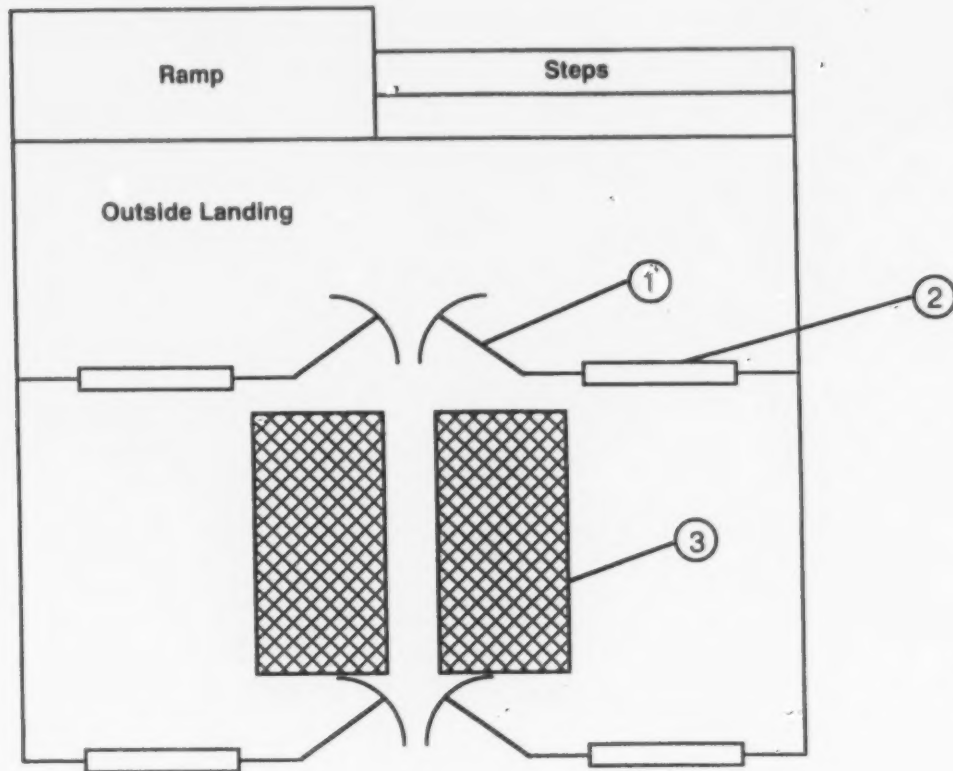
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,200 cleanable square feet (CSF)

Entranceway

**Construction***Exterior*

Ramp, steps, and outside landing of concrete
8' x 14' wide, or 112 SF

Interior

Windows and doors set in metal frames
Vinyl composition floor tile, 8' x 15' or 120 SF
Painted concrete block walls
Exposed grid drop ceiling with 4 two-tube 1' x 4'
recessed light fixtures

Features

1. 4 3' x 7' glass doors
2. 4 3' x 7' windows
1. 2 4' x 6' walk-off mats

Matrix 2 Entranceway

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean doors and windows	A/D 7.32	W 2.93	M 0.70	Q 0.23	S/A 0.12	14.64
Clean/roll-up walk-off mats	D 2.21	D 2.21	A/D 1.11	W 0.44	M 0.11	2.21
Damp-mop floors	D 3.17	D 3.17	D 3.17	A/D 1.59	W 0.63	3.17
Dust flat surfaces	D 0.50	D 0.50	W 0.10	M 0.02		0.50
Relamp	D/A 0.01	D/A 0.01	D/A 0.01	D/A 0.01	D/A 0.01	3.91
Spot-clean walls and entrance doors	A/D 0.90	W 0.36	M 0.09	Q 0.03	A 0.01	1.80
Spray-buff/burnish floors	A/D 1.66	W 0.67	M 0.16	Q 0.05		3.33
Sweep outside ramp and landing	D 3.66	W 0.73	M 0.18			3.66
Sweep/dust-mop floors	D 1.91	D 1.91	D 1.91	D 1.91	D 1.91	1.91
Adjusted minutes subtotal CSF/Custodian	21.35 4,564	12.49 7,801	7.42 13,132	4.29 22,713	2.78 35,050	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	
Perform interim floor care	M 0.78	Q 0.26	Q 0.26	Q 0.26		16.35
Project-clean light fixtures	Q 0.20	S/A 0.10	A 0.05			12.76
Project-clean walk-off mats	Q 0.10	S/A 0.05	A 0.03			6.33
Strip and refinish floors	A 0.17	A 0.17	A 0.17	A 0.17		42.65
Adjusted minutes subtotal	1.26	0.58	0.51	0.43	0.00	
Total adjusted minutes CSF/Custodian	22.61 4,312	13.07 7,455	7.93 12,272	4.72 20,644	2.78 35,050	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

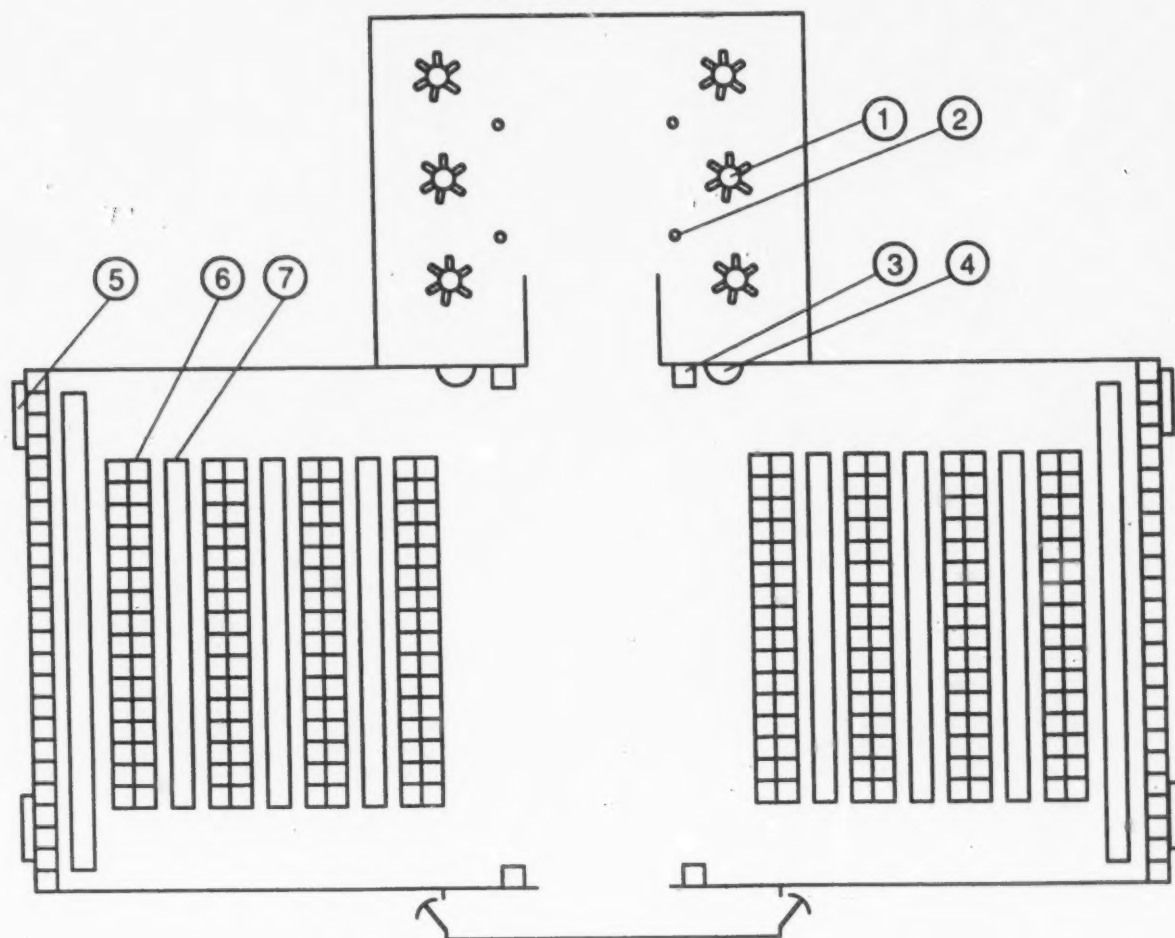
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 232 cleanable square feet (CSF).

Locker/Changing Room Not Including Shower

**Construction***Locker Room*

63' x 30' or 1,960 SF (including entry vestibule)

Sealed concrete floor

Concrete block walls

Concrete ceiling

6" glazed ceramic tile splash apron on perimeter walls and locker pedestal

Steel pipe bench supports

Exposed fluorescent lighting — 3 strips of 7'-8' fixtures equally spaced

Shower Room

25' x 16' or 400 SF

Glazed ceramic tile walls and floor

Gypsum ceiling, light gloss paint

9 recessed waterproof ceiling light fixtures

Features

1. 6 6-head stainless steel shower posts with soap tray
2. 4 floor drains
3. 4 waste receptacles
4. 2 water fountains
5. 4 18" x 3' supply air vents
6. 8 double rows of two-tiered 3'-high lockers, 20' long
2 single rows of two-tiered 3'-high lockers, 30' long
7. 6 rows of 20' wooden benches
2 rows of 24' wooden benches

Matrix 3 Locker/Changing Room Not Including Shower

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean lockers and benches	D 9.59	D 9.59				9.59
Clean trash containers	W 0.53	W 0.53				2.66
Clean water fountains	D 3.07	D 3.07				3.07
Empty waste containers	D 2.61	D 2.61				2.61
Relamp fluorescent fixtures	D/A 0.05	D/A 0.05				3.91
Spot-clean walls and doors	D 9.48	D 9.48				9.48
Sweep/dust-mop floors	D 15.50	D 15.50				15.50
Wet-mop/auto-scrub floors	D 25.86	D 25.86				25.86
Adjusted minutes subtotal CSF/Custodian	66.69 12,344	66.69 12,344				
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	
	M 0.14	M 0.14				
Dust vents						2.89
Project-clean light fixtures	S/A 0.63	A 0.31				78.25
Strip and refinish floors	S/A 2.23	A 1.12				278.75
Adjusted minutes subtotal	2.99	1.57				
Total adjusted minutes CSF/Custodian	69.69 11,812	68.26 12,060				

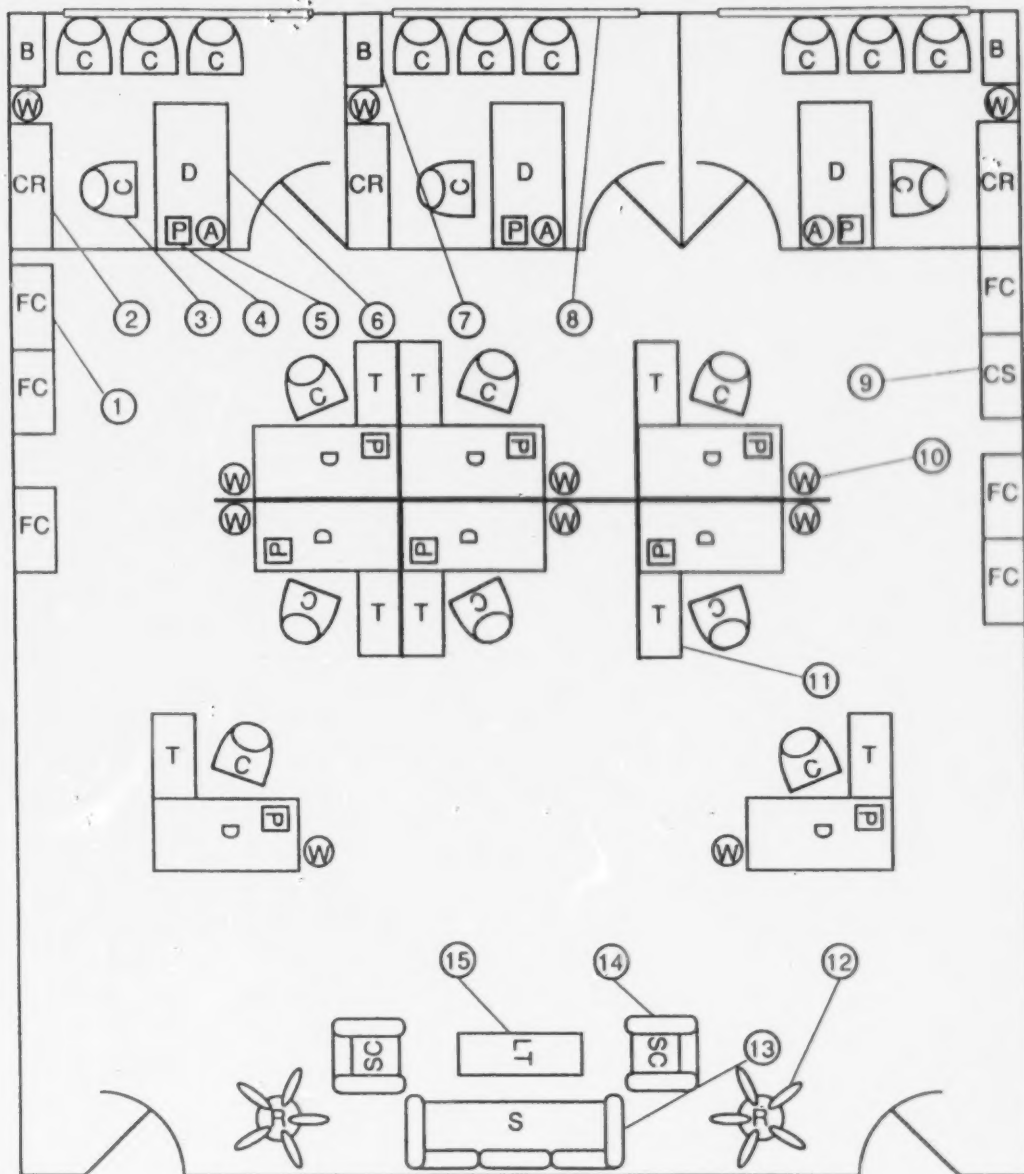
Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00	Q — Quarterly / 0.016
A/D — Alternate days / 0.50	S/A — Semiannually / 0.008
W — Weekly / 0.20	A — Annually / 0.004
M — Monthly / 0.048	D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,960 cleanable square feet (CSF).

Office with Carpeted Floor

**Construction**

30' x 40' (1,200 SF)

Carpeted floor

Gypsum, walls, light semi-gloss paint

Drop ceiling, exposed grid

36 recessed two-tube 1' x 4' fluorescent fixtures

45 LF x 4' high upholstered partition

5 ceiling supply air vents

5 solid core wood entrance doors with louvered vents

Features

1. 6 sets of three-tier lateral file cabinets
2. 3 credenzas
3. 20 desk/side chairs
4. 11 telephones
5. 3 ashtray
6. 11 desks
7. 3 two-tier bookcases
8. 3 5' x 3' windows with venetian blinds

9. Table for coffee service

10. 11 wastebaskets

11. 8 typing tables

12. 2 plastic rubber plants

13. Sofa

14. 2 upholstered lounge chairs

15. Low table

Matrix 4 Office with Carpeted Floor

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean telephones	D 4.17	W 0.83	M 0.20	Q 0.07		4.17
Dust furniture and flat surfaces	A/D 1.44	W 0.58	M 0.14	Q 0.05		2.88
Empty and clean ashtrays	D 0.73	D 0.73	D 0.73	A/D 0.37		2.88
Empty waste containers	D 6.60	D 6.60	D 6.60	A/D 3.30	W 1.32	6.60
Relamp	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	3.91
Spot-clean carpets	D 10.59	W 2.12	M 0.51	Q 0.17	Q 0.17	10.59
Spot-clean walls, partitions, and doors	A/D 2.97	W 1.19	M 0.29	Q 0.10		5.94
Vacuum carpet and straighten furniture	D 21.07	A/D 10.53	W 4.21	W 4.21	W 4.21	21.07
Adjusted minutes subtotal	47.66	22.67	12.77	8.35	5.79	
CSF/Custodian	10,575	22,232	39,468	60,359	87,047	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean trash containers	M 0.64	M 0.64	Q 0.21	S/A 0.11		13.35
Clean windows	Q 0.19	S/A 0.10	S/A 0.10	A 0.05		12.06
Dust blinds	Q 0.06	Q 0.06	S/A 0.03	S/A 0.03		3.60
Dust vents	M 0.09	M 0.09	Q 0.03	S/A 0.02		1.93
Perform interim carpet care	Q 0.69	Q 0.69	Q 0.69			43.25
Perform restorative carpet care	A 0.39	A 0.39	A 0.39	A 0.39		98.73
Project-clean light fixtures	S/A 0.91	S/A 0.91	A 0.45			113.50
Project-clean upholstered furniture	Q 2.12	Q 2.12	S/A 1.06	A 0.53		132.30
Adjusted minutes subtotal	5.10	5.00	2.97	1.12	0.00	
Total adjusted minutes	52.76	27.67	15.73	9.47	5.79	
CSF/Custodian	9,555	18,208	32,041	53,221	87,047	

Frequency Codes/Daily Adjustment Factor

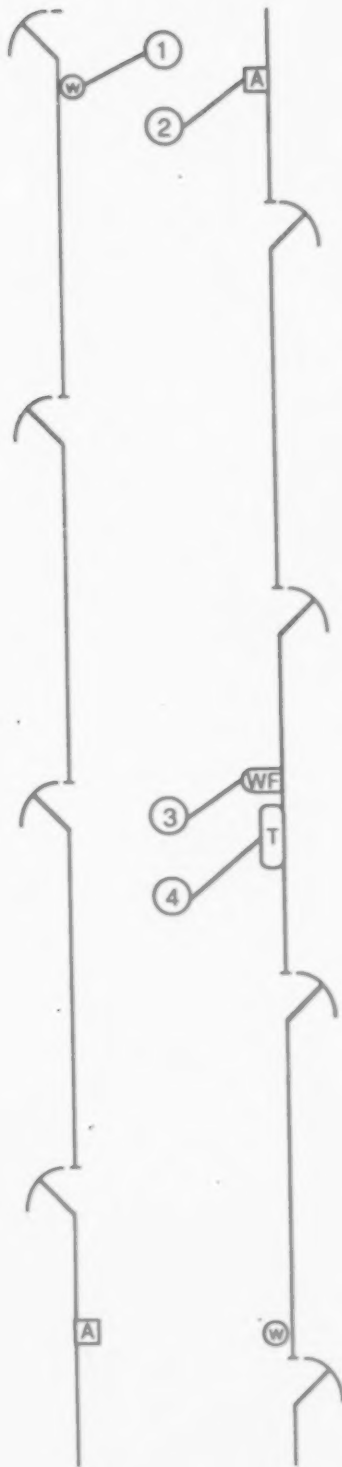
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Q — Quarterly / 0.016
 S/A — Semiannually / 0.008
 A — Annually / 0.004
 D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day

Adjusted minutes are for 1,200 cleanable square feet (CSF)

Public (Circulation) Area with Hard Floors



Construction

Vinyl composition floor tile

14' wide x 100' long (1,400 SF)

Gypsum walls, light semi-gloss washable paint

Exposed grid drop ceiling

2 rows of 20 1' x 4' recessed fluorescent fixtures

4 1.5'-diameter ceiling air vents

8 varnished wood solid-core doors with metal frames

Features

1. 2 torpedo-style waste receptacles
2. 2 wall-mounted stainless steel ash receptacles
3. Wall-mounted stainless steel water fountain
4. Wall-mounted telephone booth

Matrix 5 Public (Circulation) Area with Hard Floors

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
	D	W	M	Q	A	
Auto-scrub floors	17.19	3.44	0.83	0.28	0.07	17.19
Clean telephones	0.66	0.66	0.66	0.66	0.66	0.66
Clean water fountains	1.65	1.65	1.65	1.65	1.65	1.65
Dust flat surfaces	A/D	W	M	Q	A	1.39
	0.69	0.28	0.07	0.02	0.01	
Empty and clean ashtrays	0.51	0.51	0.51	0.51	0.51	0.51
Empty waste containers	1.26	1.26	1.26	1.26	1.26	1.26
Relamp	D/A	D/A	D/A	D/A	D/A	3.91
	0.10	0.10	0.10	0.10	0.10	
Spot-clean walls and doors	D	W	M	Q	A	2.56
	2.56	0.51	0.12	0.04	0.01	
Spray-buff/burnish floors	D	W	M	Q	A	39.87
	39.87	7.97	1.91	0.64	0.16	
Sweep, dust-map floors	D	D	D	D	D	8.53
	8.53	8.53	8.53	8.53	8.53	
Adjusted minutes subtotal	73.02	24.91	15.64	13.69	12.95	
CSF/Custodian	8,053	23,605	37,596	42,951	45,405	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	
	W	M	Q	S/A	A	
Clean trash containers	0.57	0.14	0.05	0.02	0.01	2.85
Dust vents	0.31	0.08	0.03	0.01		1.57
Perform interim floor care	Q	Q	Q			93.66
	1.50	1.50	1.50			
Project-clean light fixtures	Q	S/A	S/A	A		117.60
	1.88	0.94	0.94	0.47		
Strip and refinish floors	A	A	A	A	A	276.90
	1.11	1.11	1.11	1.11	1.11	
Adjusted minutes subtotal	5.37	3.76	3.62	1.61	1.12	
Total adjusted minutes	78.40	28.67	19.26	15.30	14.07	
CSF/Custodian	7,500	20,502	30,514	38,431	41,761	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

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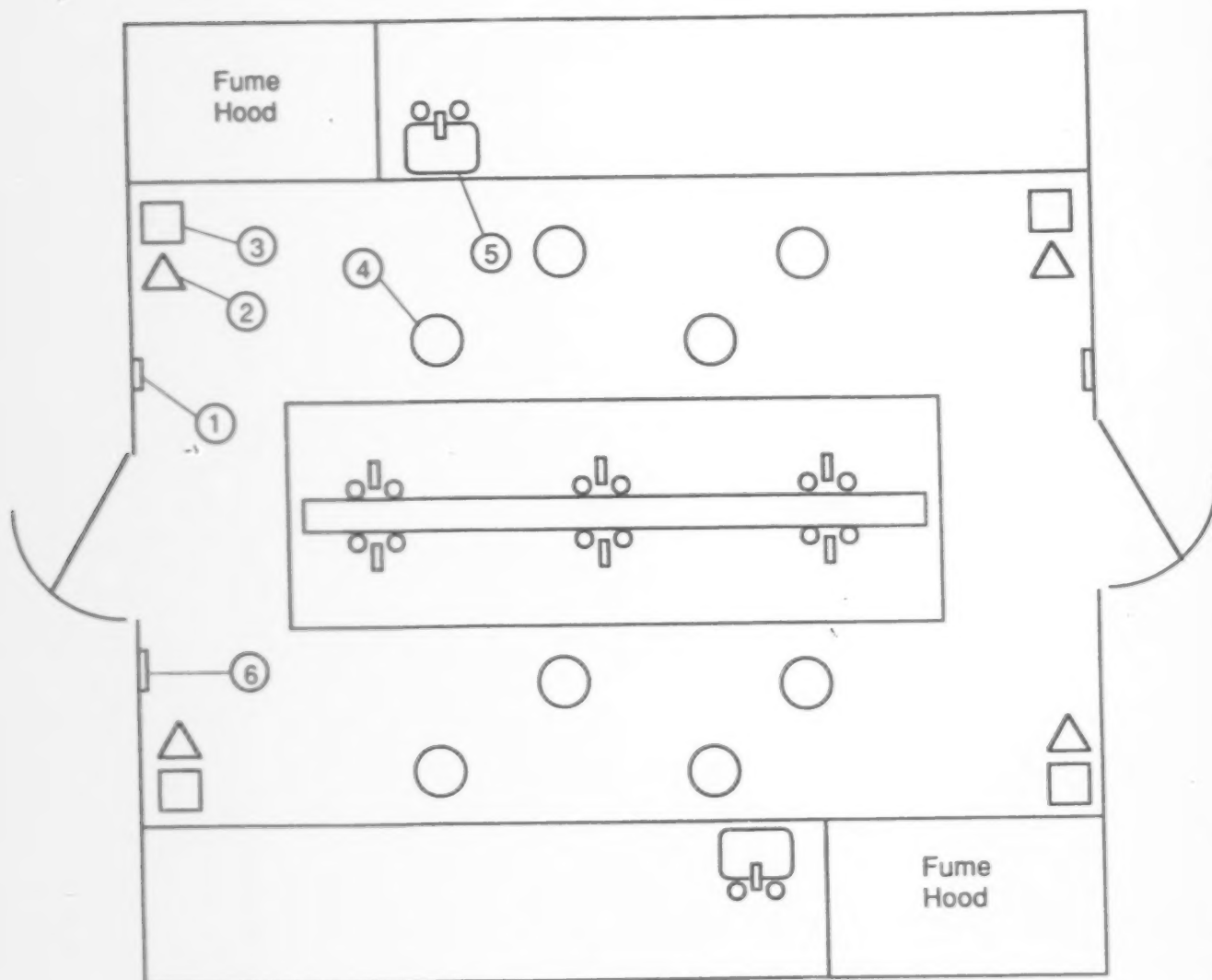
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,400 cleanable square feet (CSF)

Research Laboratory with Hazardous Waste

**Construction**

18' x 18' or 324 SF

Vinyl tile floor

Gypsum walls, semi-gloss paint

Composite counters

Cabinets below all counters have wood drawers and doors

Cabinets above all counters have glass sliding doors to ceiling

9 recessed two-tube 1' x 4' fluorescents

Wood entry doors

Features

1. Telephone

2. 4 hazardous material waste receptacles (only one hazard)

3. 4 waste receptacles

4. 8 wooden-seat lab stools

5. 2 stainless steel sinks

6. 2 9" x 12" louvered vents

Matrix 6 Research Laboratory with Hazardous Waste

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean lab sinks	D 4.44	D 4.44	D 4.44	A/D 2.22	W 0.89	4.44
Clean telephones	D 0.36	D 0.36	D 0.36	A/D 0.18		0.36
Damp-mop floors	A/D 2.11	W 0.84	W 0.84	M 0.20		4.21
Empty waste containers	D 1.56	D 1.56	D 1.56	A/D 0.78		1.56
Relamp	D/A 0.02	D/A 0.02	D/A 0.02	D/A 0.02	D/A 0.02	3.91
Remove hazardous waste	D 6.52	D 6.52	D 6.52	D 6.52	A/D 3.26	6.52
Spray-buff/burnish floors	D 5.25	W 1.05	M 0.25	Q 0.08		5.25
Sweep, dust-mop floors	D 3.27	D 3.27	A/D 1.63	A/D 1.63	W 0.65	3.27
Adjusted minutes subtotal	23.52	18.06	15.63	11.64	4.82	
CSF/Custodian	5,786	7,535	8,706	11,691	28,232	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	
	W	M	Q	S/A		
Clean trash containers	0.73	0.17	0.06	0.03		3.63
Dust furniture and flat surfaces	W 0.36	M 0.09	Q 0.03	S/A 0.01		1.80
Dust vents	W 0.14	M 0.03	Q 0.01	S/A 0.01		0.69
Perform interim floor care	Q 0.45	Q 0.45	Q 0.45	S/A 0.23		28.35
Project-clean light fixtures	S/A 0.19	A 0.10	A 0.10			24.37
Project-clean furniture	Q 0.12	Q 0.12	S/A 0.06	A 0.03		7.57
Spot-clean walls and doors	W 0.66	M 0.16	Q 0.05	S/A 0.03		3.32
Strip and refinish floors	A 0.18	A 0.18	A 0.18			44.96
Adjusted minutes subtotal	2.84	1.31	0.94	0.33	0.00	
Total adjusted minutes	26.36	19.37	16.57	11.97	4.82	
CSF/Custodian	5,162	7,029	8,212	11,368	28,232	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

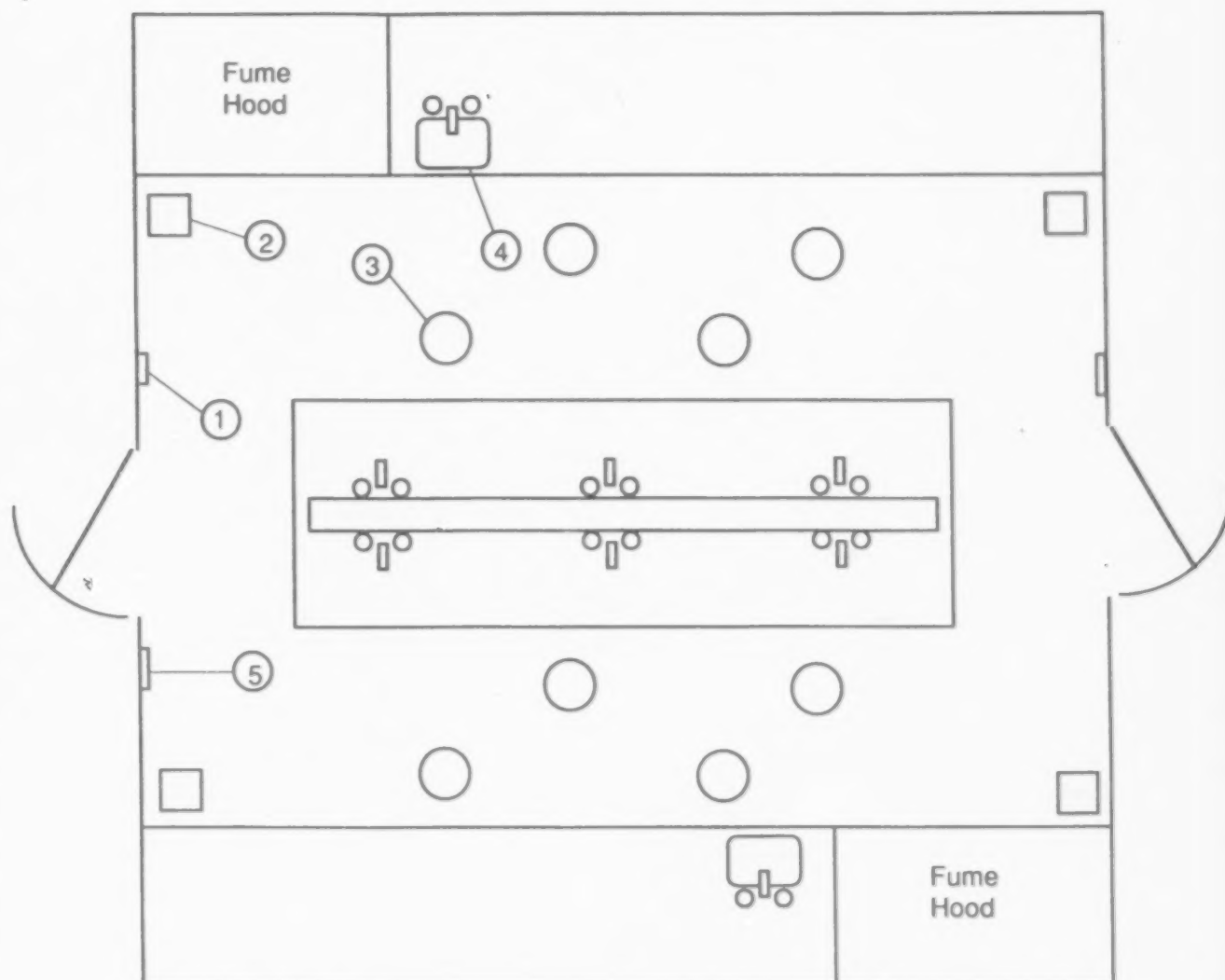
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 324 cleanable square feet (CSF).

Research Laboratory without Hazardous Waste



Construction

18' x 18' or 324 SF
 Vinyl tile floor
 Gypsum walls, semi-gloss paint
 Composite counters
 Cabinets below all counters have wood drawers and doors
 Cabinets above all counters have glass sliding doors to ceiling
 9 recessed two-tube 1' x 4' fluorescents
 Wood entry doors

Features

1. Telephone
2. 4 waste receptacles
3. 8 wooden-seat lab stools
4. 2 stainless steel sinks
5. 2 9" x 12" louvered vents

Matrix 7 Research Laboratory without Hazardous Waste

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean lab sinks	D 4.44	D 4.44	D 4.44	A/D 2.22	W 0.89	4.44
Clean telephones	D 0.36	D 0.36	D 0.36	A/D 0.18		0.36
Damp-mop floors	A/D 2.11	W 0.84	W 0.84	M 0.20		4.21
Empty waste containers	D 1.56	D 1.56	D 1.56	A/D 0.78		1.56
Relamp	D/A 0.02	D/A 0.02	D/A 0.02	D/A 0.02	D/A 0.02	3.91
Spray-buff/burnish floors	D 5.25	W 1.05	M 0.25	Q 0.08		5.25
Sweep, dust-mop floors	D 3.27	D 3.27	A/D 1.63	A/D 1.63	W 0.65	3.27
Adjusted minutes subtotal CSF/Custodian	17.01 8,000	11.54 11,792	9.11 14,937	5.11 26,630	1.56 87,231	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Clean trash containers	W 0.73	M 0.17	Q 0.06	S/A 0.03		3.63
Dust furniture and flat surfaces	W 0.36	M 0.09	Q 0.03	S/A 0.01		1.80
Dust vents	W 0.14	M 0.03	Q 0.01	S/A 0.01		0.69
Perform interim floor care	Q 0.45	Q 0.45	Q 0.45	S/A 0.23		28.35
Project clean light fixtures	S/A 0.19	A 0.10	A 0.10			24.37
Project-clean furniture	Q 0.12	Q 0.12	S/A 0.06	A 0.03		7.57
Spot-clean walls and doors	W 0.66	M 0.16	Q 0.05	S/A 0.03		3.32
Strip and refinish floors	A 0.18	A 0.18	A 0.18			44.96
Adjusted minutes subtotal	2.84	1.31	0.94	0.34	0.00	
Total adjusted minutes CSF/Custodian	19.84 6,859	12.85 10,590	10.05 13,540	5.45 24,969	1.56 87,231	

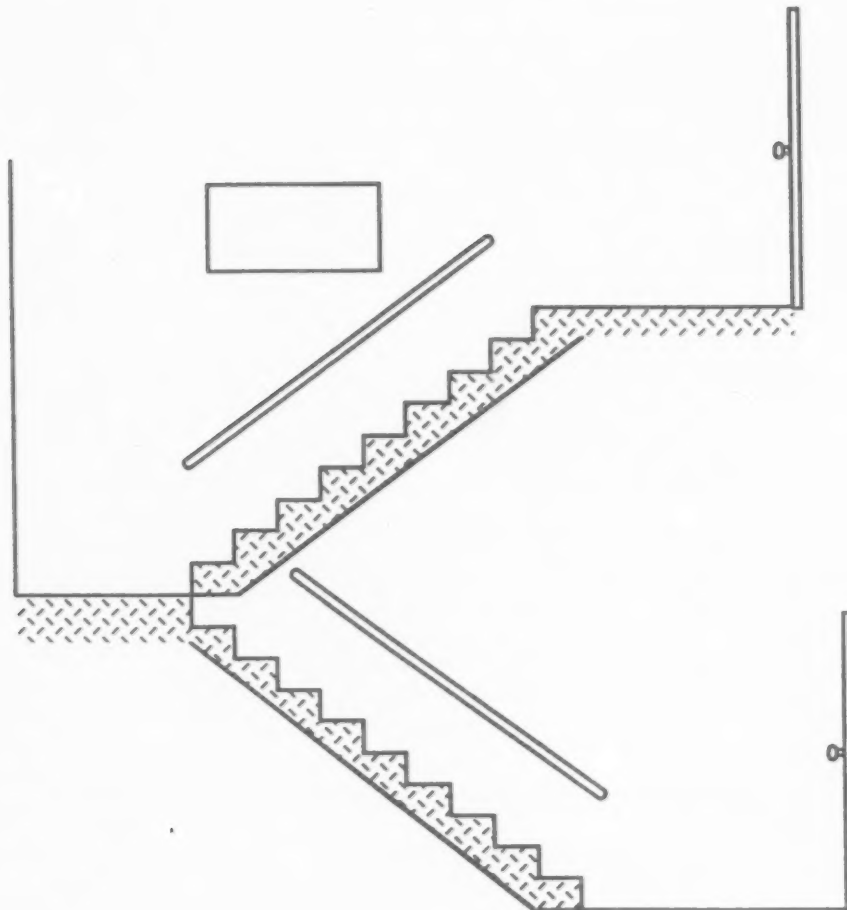
Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00	Q — Quarterly / 0.016
A/D — Alternate days / 0.50	S/A — Semiannually / 0.008
W — Weekly / 0.20	A — Annually / 0.004
M — Monthly / 0.048	D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 324 cleanable square feet (CSF).

Stairwell



Construction

208 SF, including stair treads
 Stairs of concrete, 4' wide
 Upper and lower landing of concrete, 6' deep x 8' wide
 Center landing of concrete, 4' deep x 8' wide
 2 ceiling-mounted 1' x 4' two-tube fluorescent fixtures

Features

1. Window, 2' x 4'
2. 2 steel doors, gloss paint
3. 4 steel handrails, with center landing rail, total 56 LF

Matrix 8 Stairwell

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Damp-mop stairs and landings	A/D 3.33	W 1.33	W 1.33	M 0.32	Q 0.11	6.65
Dust flat surfaces	A/D 0.82	W 0.33	Q 0.03	S/A 0.01		1.64
Relamp	D/A 0.03	D/A 0.03	D/A 0.03	D/A 0.03	D/A 0.03	3.91
Spot-clean walls and doors	A/D 1.24	W 0.49	Q 0.04	S/A 0.02		2.47
Sweep, dust-mop stairs and landings	D 5.12	A/D 2.56	A/D 2.56	A/D 2.56	W 1.02	5.12
Adjusted minutes subtotal	10.53	4.74	3.99	2.94	1.16	
CSF/Custodian	8,296	18,430	21,895	29,714	75,310	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Clean windows	S/A 0.01	S/A 0.01	A 0.01			1.62
Perform interim floor care	Q 0.71	Q 0.71	Q 0.71	S/A 0.36		44.55
Project-clean light fixtures	S/A 0.07	S/A 0.07	A 0.03			8.14
Strip/refinish floors	A 0.26	A 0.26	A 0.26	A 0.26		64.54
Adjusted minutes subtotal	1.05	1.05	1.01	0.61	0.00	
Total adjusted minutes	11.58	5.79	5.00	3.56	1.16	
CSF/Custodian	7,538	15,088	17,472	24,539	75,310	

Frequency Codes/Daily Adjustment Factor

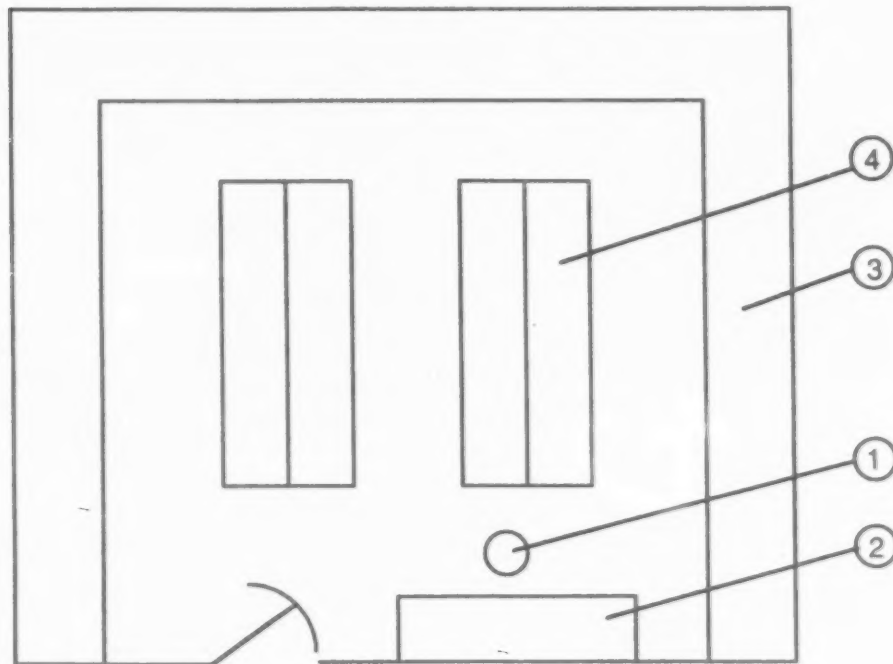
D — Daily / 1.00
 A/D — Alternate days / 0.50
 W — Weekly / 0.20
 M — Monthly / 0.048

Q — Quarterly / 0.016
 S/A — Semiannually / 0.008
 A — Annually / 0.004
 D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 208 cleanable square feet (CSF)

Storeroom



Construction

Concrete floor, 24' x 20' outer perimeter (480 SF)

8 recessed two-tube 1' x 4' fluorescents

1 ceiling vent, 1' diameter

Features

1. Wood stool, 18" diameter
2. Counter, 2' x 6' plastic laminate surface
3. Perimeter steel shelving, 2' deep x 7' high with pegboard above
4. 2 double rows of steel shelving, each row 2' deep x 8' long x 7' high

Matrix 9 Storeroom

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
	D/A 0.02	D/A 0.02	D/A 0.02	D/A 0.02	D/A 0.02	3.91
Relamp	M 0.04	Q 0.01	S/A 0.01	A 0.00		0.84
Clean entrance door	W 1.40	M 0.34	Q 0.11	S/A 0.06	A 0.03	6.99
Damp-mop floors	M 0.02	Q 0.01	S/A 0.00	A 0.00		0.39
Dust vents	A 0.10	A 0.10				24.17
Project-clean light fixtures	A 0.31	A 0.31	A 0.31			78.58
Strip/refinish floors	W 0.74	M 0.18	Q 0.06	S/A 0.03	A 0.01	3.68
Sweep, dust-mop floors						
Total adjusted minutes	2.62	0.96	0.51	0.11	0.06	
CSF/Custodian	76,946	210,000	395,294	1,832,727	3,360,000	

Frequency Codes/Daily Adjustment Factor

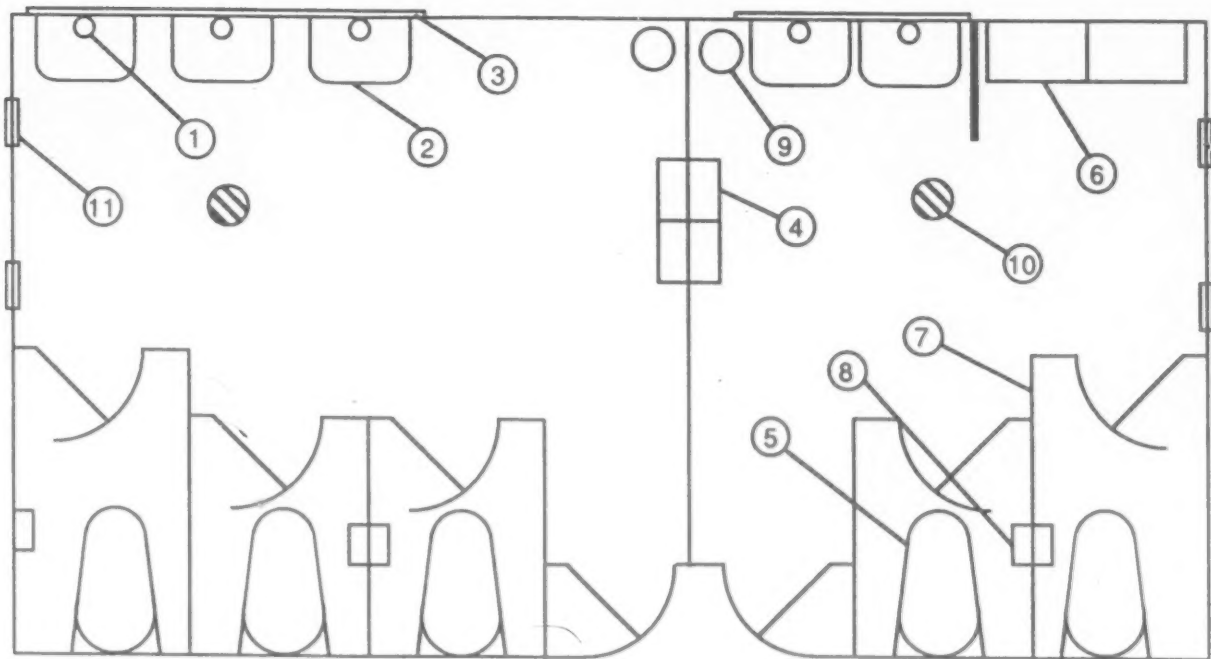
D — Daily / 1.00
 A/D — Alternate days / 0.50
 W — Weekly / 0.20
 M — Monthly / 0.048

Q — Quarterly / 0.016
 S/A — Semiannually / 0.008
 A — Annually / 0.004
 D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 480 cleanable square feet (CSF)

Washroom



Construction

Female—12'6" x 12', or 150 SF

Male—11' x 12' or 132 SF

Glazed ceramic tile floor and walls

Gypsum ceiling, light semi-gloss paint

12 (6 in each room) recessed two-tube 1' x 4' fluorescents

Features

1. 5 generic cartridge-type liquid soap dispensers
2. 5 porcelain sinks, exposed chrome plumbing
3. 2 mirrors, total 25 SF
4. 4 electric hand driers
5. 5 wall-mounted vitreous china toilets
6. 2 wall-mounted vitreous china urinals
7. 200 SF ceiling or wall-mounted plastic or enameled steel partitions
8. 5 toilet paper dispensers
9. 2 wastebaskets
10. 2 floor drains
11. 4 9" x 12" wall exhaust vents

Matrix 10 Washroom

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean mirrors	D 1.92	D 1.92				1.92
Clean partitions and doors	D 7.64	W 1.53				7.64
Clean wash bowls	D 10.47	D 10.47				10.47
Clean/disinfect toilet bowls	D 11.92	D 11.92				11.92
Clean/disinfect urinals	D 4.09	D 4.09				4.09
Dust open, flat surfaces	D 0.31	W 0.06				0.31
Empty waste containers	D 1.32	D 1.32				1.32
Relamp	D/A 0.03	D/A 0.03				3.91
Restock soap and toilet paper	D 9.21	D 9.21				9.21
Spot-clean walls and doors	D 3.51	W 0.70				3.51
Sweep/dust-mop floors	D 3.31	D 3.31				3.31
Wet-map and scrub floors	D 5.67	W 1.13				5.67
Adjusted minutes subtotal CSF/Custodian	59.40 1,994	45.70 2,592				
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Clean trash containers	W 0.37	M 0.09				1.85
Dust vents	M 0.06	M 0.06				1.35
Project-clean light fixtures	Q 0.45	S/A 0.23				28.17
Adjusted minutes subtotal	0.89	0.38				
Total adjusted minutes CSF/Custodian	60.29 1,965	46.07 2,571				

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

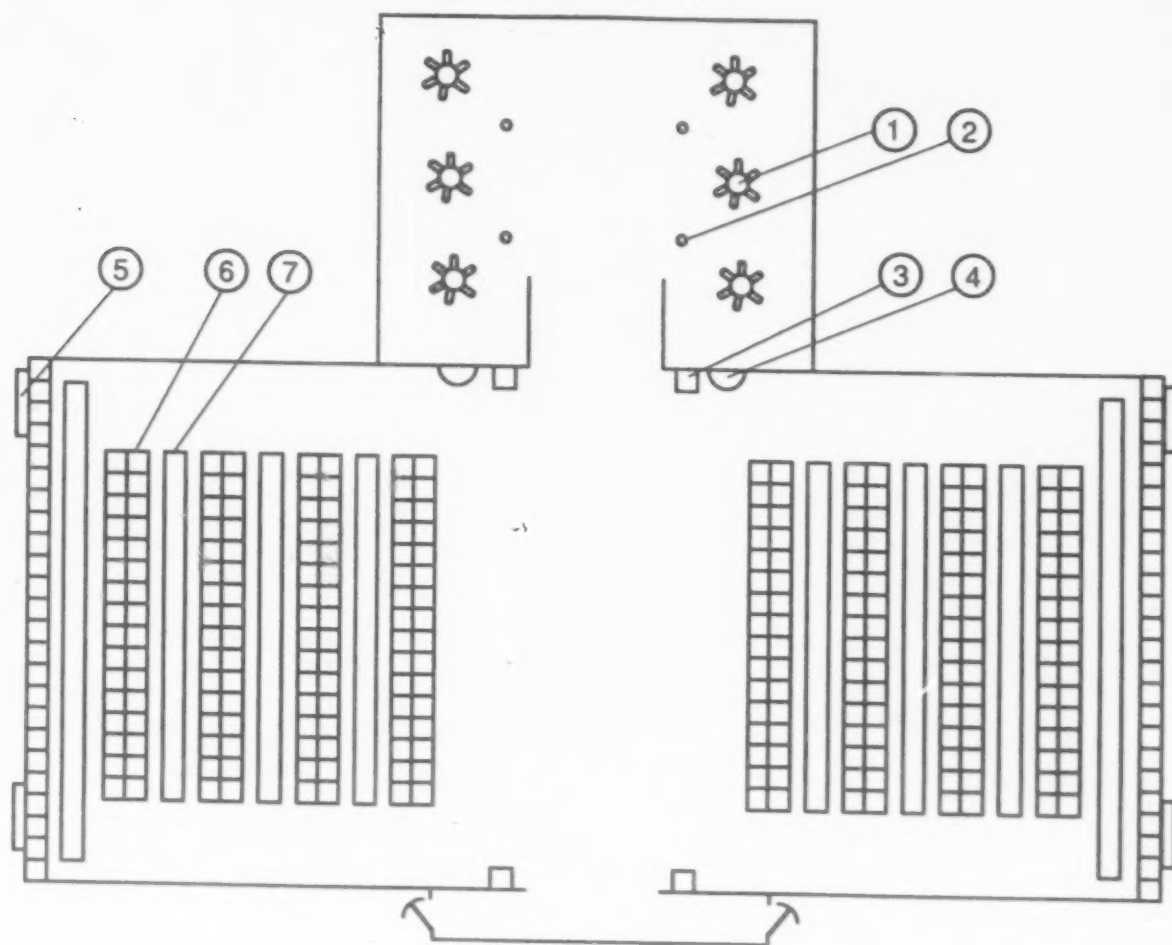
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 282 cleanable square feet (CSF)

Shower Room

**Construction***Locker Room*

63' x 30' or 1,960 SF (including entry vestibule)

Sealed concrete floor

Concrete block walls

Concrete ceiling

6" glazed ceramic tile splash apron on perimeter walls and locker pedestal

Steel pipe bench supports

Exposed fluorescent lighting — 3 strips of 7'–8' fixtures equally spaced

Shower Room

25' x 16' or 400 SF

Glazed ceramic tile walls and floor

Gypsum ceiling, light gloss paint

9 recessed waterproof ceiling light fixtures

Features

1. 6 6-head stainless steel shower posts with soap tray
2. 4 floor drains
3. 4 waste receptacles
4. 2 water fountains
5. 4 18" x 3' supply air vents
6. 8 double rows of two-tiered 3'-high lockers, 20' long
2 single rows of two-tiered 3'-high lockers, 30' long
7. 6 rows of 20' wooden benches
2 rows of 24' wooden benches

Matrix 11 Shower Room

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean drains	D 5.56	D 5.56				5.56
Clean/disinfect shower room	D 26.82	D 26.82				26.82
Relamp safety fixtures	D/A 0.20	D/A 0.20				2.84
Total adjusted minutes	32.58	32.58				
CSF/Custodian	5,157	5,157				

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

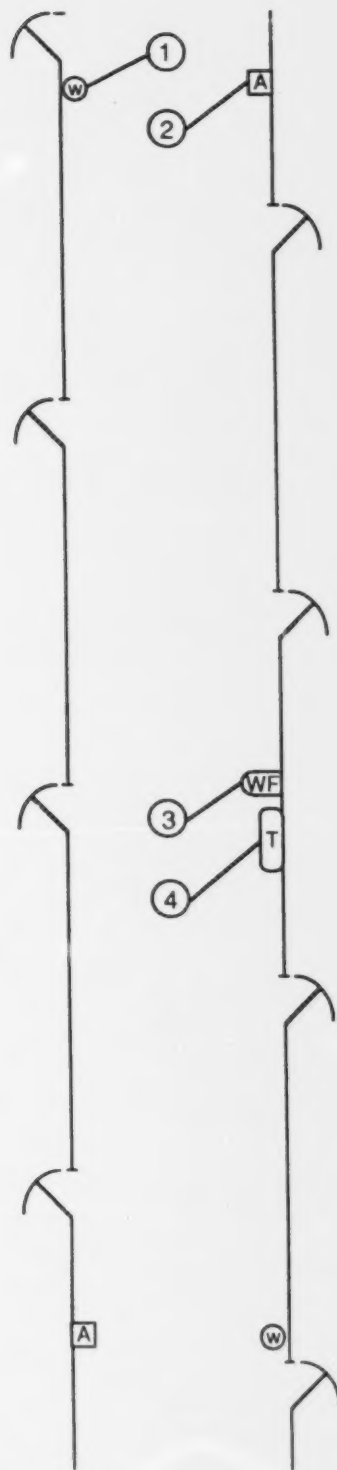
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 400 cleanable square feet (CSF):

Public (Circulation) Area with Carpeted Floors

**Construction**

Floor, carpet

14' wide x 100' long (1,400 SF)

Gypsum walls, light semi-gloss washable paint

Exposed grid drop ceiling

2 rows of 20 1' x 4' recessed fluorescent fixtures

4 1.5'-diameter ceiling air vents

8 varnished wood solid-core doors with metal frames

Features

1. 2 torpedo-style waste receptacles
2. 2 wall-mounted stainless steel ash receptacles
3. Wall-mounted stainless steel water fountain
4. Wall-mounted telephone booth

Matrix 12 Public (Circulation) Area with Carpeted Floors

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Vacuum carpet and straighten furniture	D 9.34	A/D 4.67	W 1.87	W 1.87	W 1.87	9.34
Clean telephones	D 0.66	D 0.66	D 0.66	D 0.66	D 0.66	0.66
Clean water fountains	D 1.65	D 1.65	D 1.65	D 1.65	D 1.65	1.65
Dust flat surfaces	A/D 0.69	W 0.28	M 0.07	Q 0.02	A 0.01	1.39
Empty and clean ashtrays	D 0.51	D 0.51	D 0.51	D 0.51	D 0.51	0.51
Empty waste containers	D 1.26	D 1.26	D 1.26	D 1.26	D 1.26	1.26
Relamp	D/A 0.10	D/A 0.10	D/A 0.10	D/A 0.10	D/A 0.10	3.91
Spot-clean walls and doors	D 2.56	W 0.51	M 0.12	Q 0.04	A 0.01	2.56
Spot clean carpets	D 12.36	W 2.47	W 2.47	Q 0.20	Q 0.20	12.36
Adjusted minutes subtotal CSF/Custodian	29.14 20,178	12.11 48,555	8.71 67,509	6.31 93,185	6.27 93,780	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
	W	M	Q	S/A	A	
Clean trash containers	0.57	0.14	0.05	0.02	0.01	2.85
Dust vents	0.31	0.08	0.03	0.01		1.57
Perform restorative carpet care	A 0.46	A 0.46	A 0.46	A 0.46		93.66
Project-clean light fixtures	Q 1.88	S/A 0.94	S/A 0.94	A 0.47		117.60
Perform interim carpet care	Q 0.81	Q 0.81	Q 0.81			276.90
Adjusted minutes subtotal	4.03	2.43	2.29	0.96	0.01	
Total adjusted minutes CSF/Custodian	33.17 17,727	14.54 40,440	11.00 53,455	7.27 80,880	6.28 93,631	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

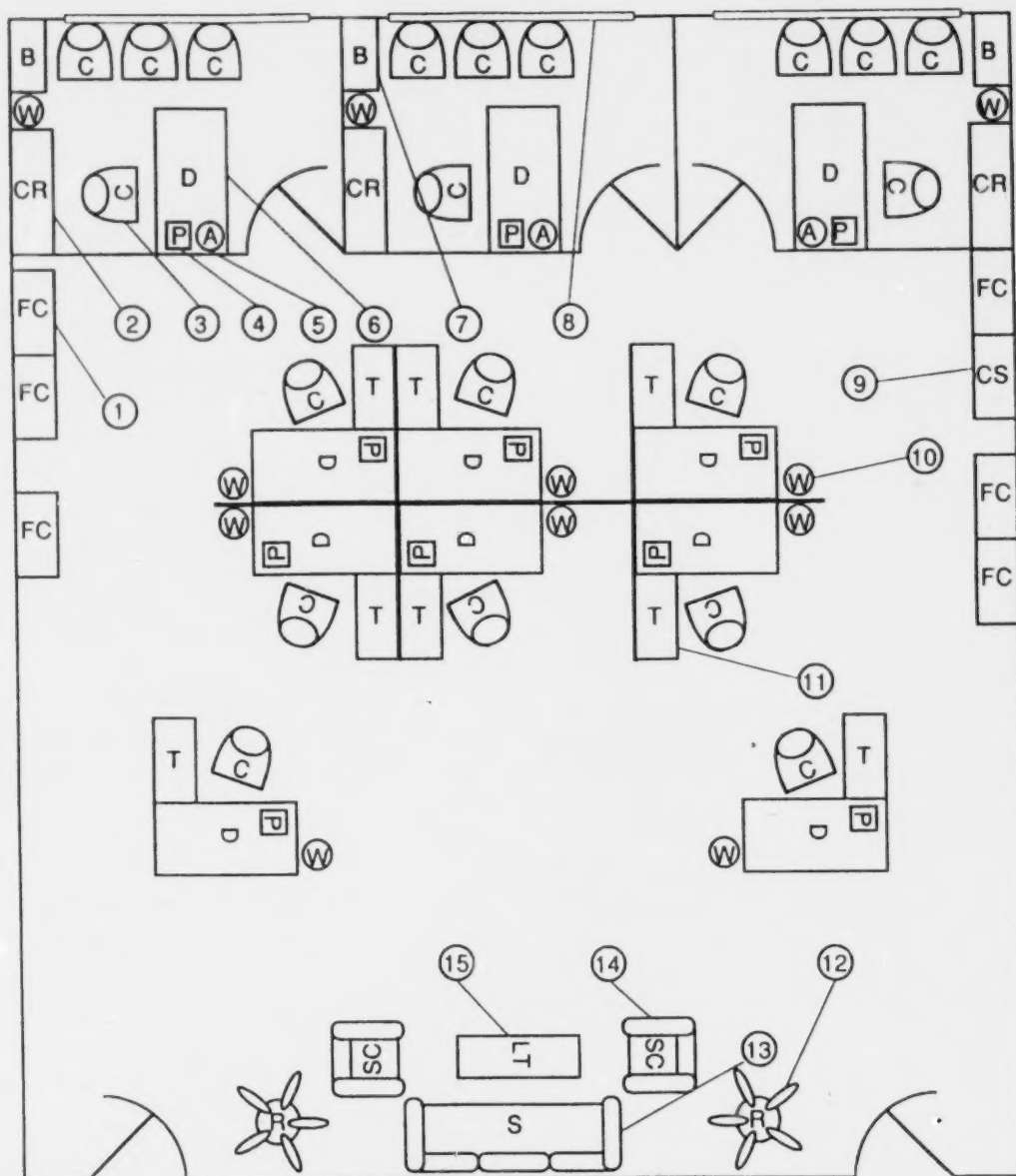
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,400 cleanable square feet (CSF).

Office with Hard Floors

**Construction**

30' x 40' (1,200 SF)

Floor, vinyl composition tile

Gypsum, walls, light semi-gloss paint

Drop ceiling, exposed grid

36 recessed two-tube 1' x 4' fluorescent fixtures

45 LF x 4' high upholstered partitions

5 ceiling supply air vents

5 solid core wood entrance doors with louvered vents

Features

1. 6 sets of three-tier lateral file cabinets

2. 3 credenzas

3. 20 desk/side chairs

4. 11 telephones

5. 3 ashtrays

6. 11 desks

7. 3 two-tier bookcases

8. 3 5' x 3' windows with venetian blinds

9. Table for coffee service

10. 11 wastebaskets

11. 8 typing tables

12. 2 plastic rubber plants

13. Sofa

14. 2 upholstered lounge chairs

15. Low table

Matrix 13 Office with Hard Floors

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean telephones	D 4.17	W 0.83	M 0.20	Q 0.07	Q 0.07	4.17
Dust furniture and flat surfaces	A/D 1.44	W 0.58	M 0.14	Q 0.05	Q 0.05	2.88
Empty and clean ashtrays	D 0.73	D 0.73	D 0.73	A/D 0.37	A/D 0.37	2.88
Empty waste containers	D 6.60	D 6.60	D 6.60	A/D 3.30	W 1.32	6.60
Relamp	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	3.91
Damp-mop floors	D 17.10	M 0.82	M 0.82	S/A 0.14		17.10
Spot-clean walls, partitions and doors	A/D 2.97	W 1.19	M 0.29	Q 0.10	Q 0.10	5.94
Sweep, dust-mop floors	D 16.40	D 16.40	A/D 8.20	A/D 8.20	A/D 8.20	16.40
Adjusted minutes subtotal CSF/Custodian	49.50 10,182	27.24 18,502	17.06 29,543	12.30 40,976	10.18 49,509	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Clean trash containers	M 0.64	M 0.64	Q 0.21	S/A 0.11		13.35
Clean windows	Q 0.19	S/A 0.10	S/A 0.10	A 0.05		12.06
Dust blinds	Q 0.06	Q 0.06	S/A 0.03	S/A 0.03		3.60
Dust vents	M 0.09	M 0.09	Q 0.03	S/A 0.02		1.93
Perform interim floor care	Q 1.76	Q 1.76				109.70
Spray/buff-burnish floors	W 3.74	M 0.90	Q 0.30	S/A 0.15		18.70
Strip/refinish floors	A 0.83	A 0.83	A 0.83	A 0.83		208.30
Project-clean light fixtures	S/A 0.91	S/A 0.91	A 0.45			113.50
Project-clean upholstered furniture	Q 2.12	Q 2.12	S/A 1.06	A 0.53		132.30
Adjusted minutes subtotal	10.34	7.40	3.01	1.71	0.00	
Total adjusted minutes CSF/Custodian	59.84 8,422	34.64 14,550	20.08 25,100	14.01 35,974	10.18 49,509	

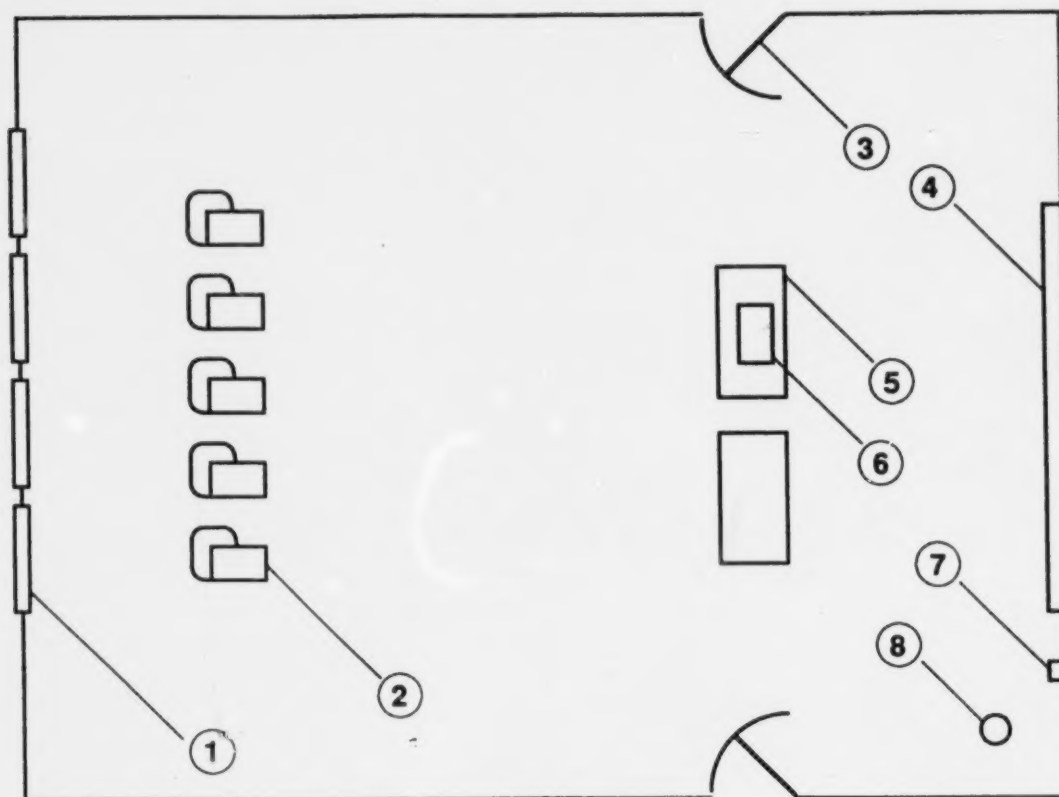
Frequency Codes/Daily Adjustment Factor

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A/D — Alternate days / 0.50	S/A — Semiannually / 0.008
W — Weekly / 0.20	A — Annually / 0.004
M — Monthly / 0.048	D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,200 cleanable square feet (CSF).

Classroom with Carpeted Floor



Construction

30' x 40' (1,200 SF)
 Gypsum walls, light semi-gloss paint
 Exposed grid drop ceiling
 36 recessed, two-tube 2' x 4' fluorescents
 Carpeted floor
 1 supply air vent, 18" x 24"

Features

1. 4 windows, 50 SF* total area with venetian blinds
2. 50 tablet arm chairs, moveable
3. 2 36" doors, each with a 4-SF window
4. Chalkboard, 50 SF
5. 2 work tables*
6. 1 lectern*
7. 1 pencil sharpener
8. 1 wastebasket with liner

*Window ledges, work tables, and lectern total 40 SF of dusting surface.

Matrix 14 Classroom with Carpeted Floor

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Spot clean walls and doors	D 3.90	W 0.78	M 0.19	S/A 0.03		3.90
Relamp	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	3.91
Clean chalkboards and trays	D 4.20	D 4.20	D 4.20	A/D 2.10	A/D 2.10	4.20
Dust flat surfaces	D 5.50	W 1.10	W 1.10	M 0.26		5.50
Empty waste containers	D 0.70	D 0.70	D 0.70	A/D 0.35	A/D 0.35	0.70
Empty pencil sharpeners	D 0.60	D 0.60	D 0.60	A/D 0.30		0.60
Vacuum carpet and straighten furniture	D 21.07	A/D 10.53	A/D 10.53	A/D 10.53	A/D 10.53	21.07
Spot-clean carpets	D 10.59	W 2.12	M 0.51	Q 0.17	Q 0.17	10.59
Clean erasers	D 0.60	D 0.60	D 0.60	A/D 0.30	A/D 0.30	0.60
Adjusted minutes subtotal	47.25	20.72	18.52	14.14	13.54	
CSF/Custodian	10,667	24,324	27,214	35,644	37,223	
Project Activities	Frequency Adjusted Time					Base Ti
	Level 1	Level 2	Level 3	Level 4	Level 5	
Dust blinds	M 0.30	A 0.03	A 0.03			6.30
Project clean furniture and seating	Q 1.95	A 0.49	A 0.49			122.00
Clean trash containers	W 0.28	S/A 0.01	S/A 0.01	A 0.01		1.40
Dust vents	M 0.07	Q 0.02	S/A 0.01	S/A 0.01	A 0.00	1.50
Perform interim carpet care	Q 0.69	Q 0.69	Q 0.69			43.25
Perform restorative carpet care	A 0.39	A 0.39	A 0.39	A 0.39		98.73
Clean windows	A 0.12	A 0.06	A 0.06			15.10
Project-clean light fixtures	A 0.78	A 0.78	A 0.78			195.40
Adjusted minutes subtotal	4.60	2.48	2.47	0.41	0.00	
Total adjusted minutes	51.85	23.20	20.99	14.55	13.54	
CSF/Custodian	9,720	21,724	24,011	34,639	37,223	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

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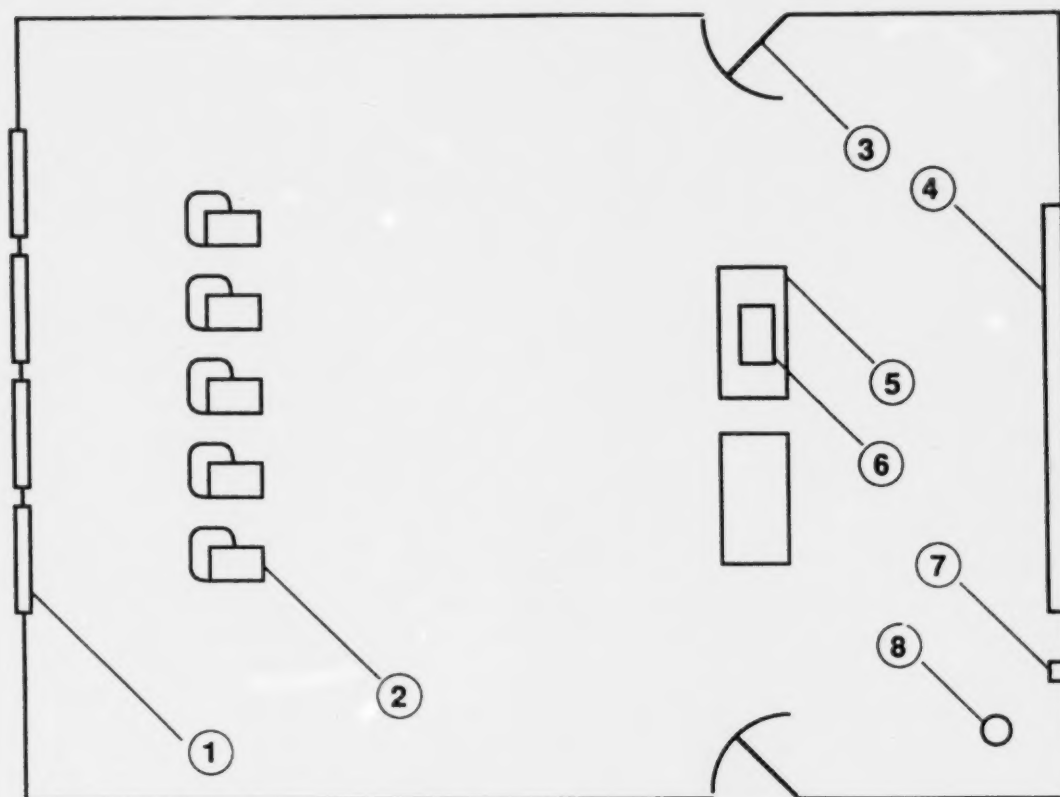
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,200 cleanable square feet (CSF).

Classroom with Carpeted Floor — Heavy Use



Construction

30' x 40' (1,200 SF)
 Gypsum walls, light semi-gloss paint
 Exposed grid drop ceiling
 36 recessed, two-tube 2' x 4' fluorescents
 Carpeted floor
 1 supply air vent, 18" x 24"

Features

1. 4 windows, 50 SF* total area with venetian blinds
2. 50 tablet arm chairs, moveable
3. 2 36" doors, each with a 4-SF window
4. Chalkboard, 50 SF
5. 2 work tables*
6. 1 lectern*
7. 1 pencil sharpener
8. 1 wastebasket with liner

*Window ledges, work tables, and lectern total 40 SF of dusting surface.

Note: Heavy use areas are identical in appearance to their "normal use" counterparts except that added daily cleaning activities are scheduled due to the heavy use.

Matrix 15 Classroom with Carpeted Floor — Heavy Use

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Spot-clean walls and doors	TD 7.80	W 0.78	M 0.19	S/A .03		3.90
Relamp	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	3.91
Clean chalkboards and trays	TD 8.40	TD 8.40	TD 8.40	D 4.20	D 4.20	4.20
Dust flat surfaces	TD 11.00	W 1.10	W 1.10	M 0.26		5.50
Empty waste containers	TD 1.40	TD 1.40	TD 1.40	D 0.70	D 0.70	0.70
Empty pencil sharpeners	TD 1.20	TD 1.20	TD 1.20	D 0.60		0.60
Vacuum carpet and straighten furniture	TD 42.14	D 21.07	D 21.07	D 21.07	D 21.07	21.07
Spot-clean carpets	TD 21.18	W 2.12	M 0.51	Q 0.17	Q 0.17	10.59
Clean erasers	TD 1.20	TD 1.20	TD 1.20	D 0.60	D 0.60	0.60
Adjusted minutes subtotal CSF/Custodian	94.41 5,338	37.36 13,490	35.16 14,334	27.72 18,182	26.83 18,785	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Dust blinds	M 0.30	A 0.03	A 0.03			6.30
Project-clean furniture and seating	Q 1.95	A 0.49	A 0.49			122.00
Clean trash containers	W 0.28	S/A 0.01	S/A 0.01	A 0.01		1.40
Dust vents	M 0.07	Q 0.02	S/A 0.01	A 0.01		1.50
Perform interim carpet care	Q 0.69	Q 0.69	Q 0.69			43.25
Perform restorative carpet care	A 0.39	A 0.39	A 0.39	A 0.39		98.73
Clean windows	S/A 0.12	A 0.06	A 0.06			15.10
Project-clean light fixtures	A 0.78	A 0.78	A 0.78			195.40
Adjusted minutes subtotal	4.60	2.48	2.47	0.41	0.00	
Total adjusted minutes CSF/Custodian	99.01 5,090	39.84 12,651	37.62 13,397	28.13 17,917	26.83 18,785	

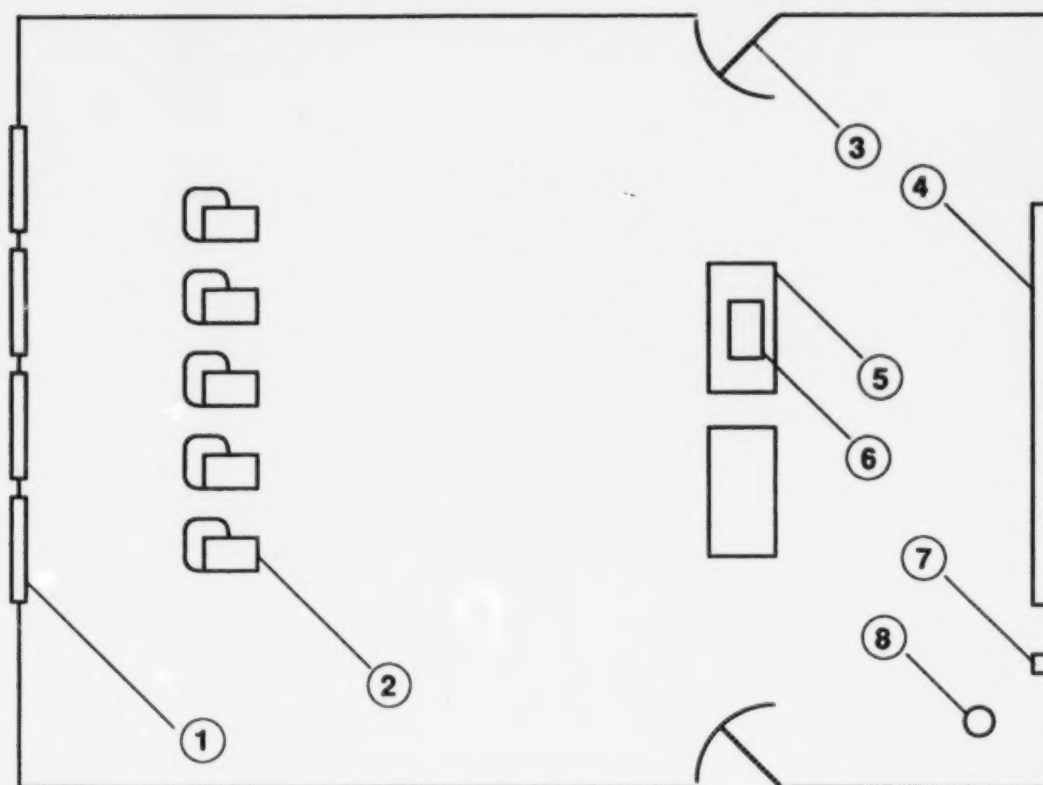
Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00	Q — Quarterly / 0.016
A/D — Alternate days / 0.50	S/A — Semiannually / 0.008
W — Weekly / 0.20	A — Annually / 0.004
M — Monthly / 0.048	D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,200 cleanable square feet (CSF)

Classroom with Hard Floor — Heavy use

**Construction**

30' x 40' (1,200 SF)

Gypsum walls, light semi-gloss paint

Exposed grid drop ceiling

36 recessed, two-tube 2' x 4' fluorescents

Vinyl tile floor

1 supply air vent, 18" x 24"

Features

1. 4 windows, 50 SF* total area with venetian blinds

2. 50 tablet arm chairs, moveable

3. 2 36" doors, each with a 4-SF window

4. Chalkboard, 50 SF

5. 2 work tables*

6. 1 lectern*

7. 1 pencil sharpener

8. 1 wastebasket with liner

*Window ledges, work tables, and lectern total 40 SF of dusting surface.

Note: Heavy use areas are identical in appearance to their "normal use" counterparts except that added daily cleaning activities are scheduled due to the heavy use.

Matrix 16 Classroom with Hard Floor — Heavy Use

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Spot-clean walls and doors	TD 7.80	W 0.78	M 0.19	S/A 0.03		3.90
Relamp	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	D/A 0.09	3.91
Clean chalkboards and trays	TD 8.40	TD 8.40	TD 8.40	D 4.20	D 4.20	4.20
Dust flat surfaces	TD 11.00	W 1.10	W 1.10	M 0.26		5.50
Empty waste containers	TD 1.40	TD 1.40	TD 1.40	D 0.70	D 0.70	0.70
Empty pencil sharpeners	TD 1.20	TD 1.20	TD 1.20	D 0.60		0.60
Sweep, dust-map floors	TD 32.80	TD 32.80	TD 32.80	D 16.40	D 16.40	16.40
Clean erasers	TD 1.20	TD 1.20	TD 1.20	D 0.60	D 0.60	0.60
Adjusted minutes subtotal	63.80	46.88	46.38	22.80	21.90	
CSF/Custodian	7,900	10,751	10,866	22,105	23,014	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Dust blinds	M 0.30	A 0.03	A 0.03			6.30
Project-clean furniture and seating	Q 1.95	A 0.49	A 0.49			122.00
Clean trash containers	W 0.28	S/A 0.01	S/A 0.01	A 0.01		1.40
Dust vents	M 0.07	Q 0.02	S/A 0.01	S/A 0.01	A 0.00	1.50
Perform interim floor care	Q 1.76	Q 1.76				109.70
Strip/refinish floors	A 0.83	A 0.83	A 0.83	A 0.83		208.30
Clean windows	S/A 0.12	A 0.06	A 0.06			15.10
Project-clean light fixtures	S/A 0.78	A 0.78	A 0.78			195.40
Spray-buff/burnish floors	W 3.74	M 0.90	Q 0.30	S/A 0.15		18.70
Damp-map floors	TD 34.20	M 0.82	M 0.82	S/A 0.14		17.10
Adjusted minutes subtotal	44.13	5.79	3.33	1.22	0.00	
Total adjusted minutes	107.93	52.67	49.71	24.02	21.99	
CSF/Custodian	4,670	9,569	10,139	20,983	22,920	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

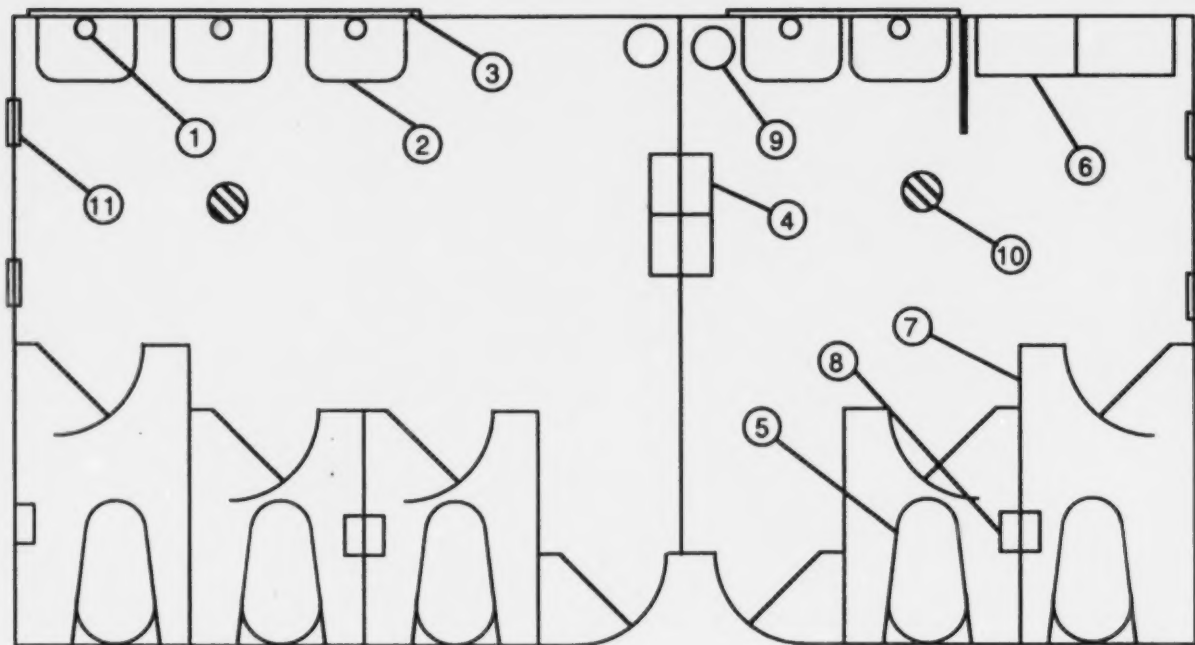
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,200 cleanable square feet (CSF).

Washroom — Heavy Use



Construction

Female—12'6" x 12', or 150 SF

Male—11' x 12' or 132 SF

Glazed ceramic tile floor and walls

Gypsum ceiling, light semi-gloss paint

12 (6 in each room) recessed two-tube 1' x 4' fluorescents

Features

1. 5 generic cartridge-type liquid soap dispensers
2. 5 porcelain sinks, exposed chrome plumbing
3. 2 mirrors, total 25 SF
4. 4 electric hand driers
5. 5 wall-mounted vitreous china toilets
6. 2 wall-mounted vitreous china urinals
7. 200 SF ceiling or wall-mounted plastic or enameled steel partitions
8. 5 toilet paper dispensers
9. 2 wastebaskets
10. 2 floor drains
11. 4 9" x 12" wall exhaust vents

Note: Heavy use areas are identical in appearance to their "normal use" counterparts except that added daily cleaning activities are scheduled due to the heavy use.

Matrix 17 Washroom — Heavy Use

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean mirrors	TD 3.84	TD 3.84				1.92
Clean partitions and doors	TD 15.28	W 1.53				7.64
Clean wash bowls	TD 20.94	TD 20.94				10.47
Clean/disinfect toilet bowls	TD 23.84	TD 23.84				11.92
Clean/disinfect urinals	TD 8.18	TD 8.18				4.09
Dust open, flat surfaces	TD 0.62	W 0.06				0.31
Empty waste containers	TD 2.64	TD 2.64				1.32
Relamp	D/A 0.03	D/A 0.03				3.91
Restock soap and toilet paper	TD 18.42	TD 18.42				9.21
Spot-clean walls and doors	TD 7.02	W 0.70				3.51
Sweep/dust-mop floors	TD 6.62	TD 6.62				3.31
Wet-mop and scrub floors	TD 11.34	W 1.13				5.67
Adjusted minutes subtotal CSF/Custodian	118.77 997	87.94 1,347				
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Clean trash containers	W 0.37	M 0.09				1.85
Dust vents	M 0.06	M 0.06				1.35
Project-clean light fixtures	Q 0.45	S/A 0.23				28.17
Adjusted minutes subtotal	0.89	0.38				
Total adjusted minutes CSF/Custodian	119.66 990	88.31 1,341				

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

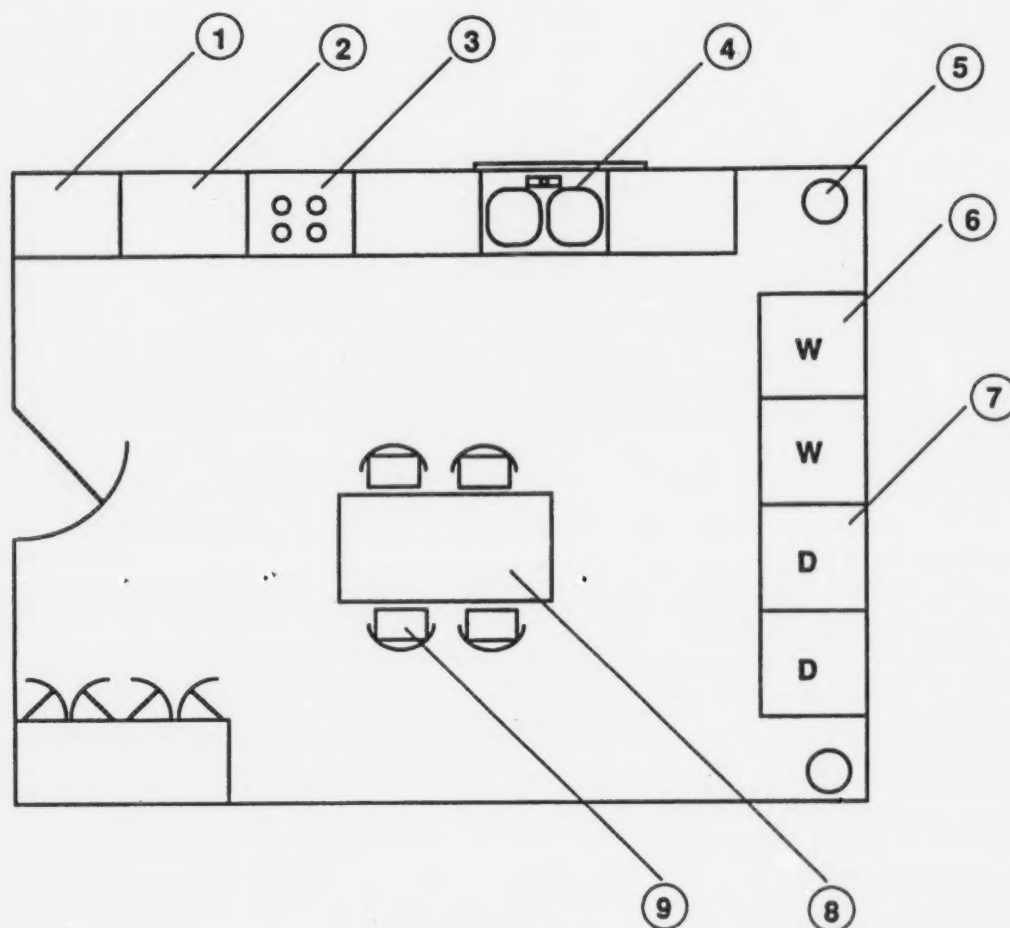
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 282 cleanable square feet (CSF).

Utility

**Construction**

Floor: 15' x 20' vinyl tile (300 SF)
 Walls: Gypsum (8' high) semi-gloss paint
 Ceiling: Exposed dropped grid
 Vents: 2 - Wall, 2' x 2'
 Lighting: 6 - Two-tube 1' x 4' fluorescent
 Door: 36" painted metal
 Window: 4' x 4' above sink
 Floor Drain: Near sink and washers
 Closet: 2' x 5' with bi-fold metal doors

Features

1. Refrigerator
2. 3 - 2' x 3' Formica counters
3. Electric range with microwave and vent above
4. Double bowl stainless steel sink
5. 2 - Torpedo waste containers
6. 2 - Automatic washers
7. 2 - Automatic dryers
8. 2-1/2' x 5' Formica top table
9. 4 - Metal/vinyl washable chairs

Matrix 18 Utility

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Spray-buff/burnish floors	A/D 6.70	W 2.68	M 0.64	Q 0.21		13.40
Sweep, dust-mop floor, straighten furniture	D 5.10	D 5.10	A/D 2.55	A/D 2.55	W 1.02	5.10
Damp-mop floor	D 5.70	D 5.70	A/D 2.85	W 1.14	M 0.27	5.70
Relamp	D/A 0.02	D/A 0.02	D/A 0.02	D/A 0.02	D/A 0.02	3.91
Empty waste containers	D 1.60	D 1.60	D 1.60	A/D 0.80	W 0.32	1.60
Clean sink	D 3.22	D 3.22	D 3.22	A/D 1.61	W 0.64	3.22
Dust furniture, flat surfaces	D 4.30	A/D 2.15	W 0.86	M 0.21		4.30
Adjusted minutes subtotal	26.64	20.47	11.74	6.54	2.28	
CSF/Custodian	4,730	6,155	10,733	19,266	55,263	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Project-clean table and chairs	Q 0.13	Q 0.13	S/A 0.07	A 0.03		8.30
Clean window, both sides	S/A 0.04	A 0.02	A 0.02			5.60
Dust vents	W 0.28	M 0.07	Q 0.02	S/A 0.01		1.40
Project-clean all light fixtures	S/A 0.13	A 0.07	A 0.07	A 0.07	A 0.07	16.80
Strip/refinish floors	S/A 0.82	S/A 0.82	A 0.41	A 0.41	A 0.41	102.90
Clean trash containers	W 0.58	M 0.14	Q 0.05	S/A 0.02		2.90
Spot-clean walls, door	W 1.10	M 0.26	Q 0.09	S/A 0.04		5.50
Interim floor care	Q 0.88	Q 0.88	S/A 0.44			55.10
Adjusted minutes subtotal	3.98	2.40	1.17	0.59	0.48	
Total adjusted minutes	30.62	22.87	12.91	7.13	2.76	
CSF/Custodian	4,115	5,509	9,760	17,672	45,652	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

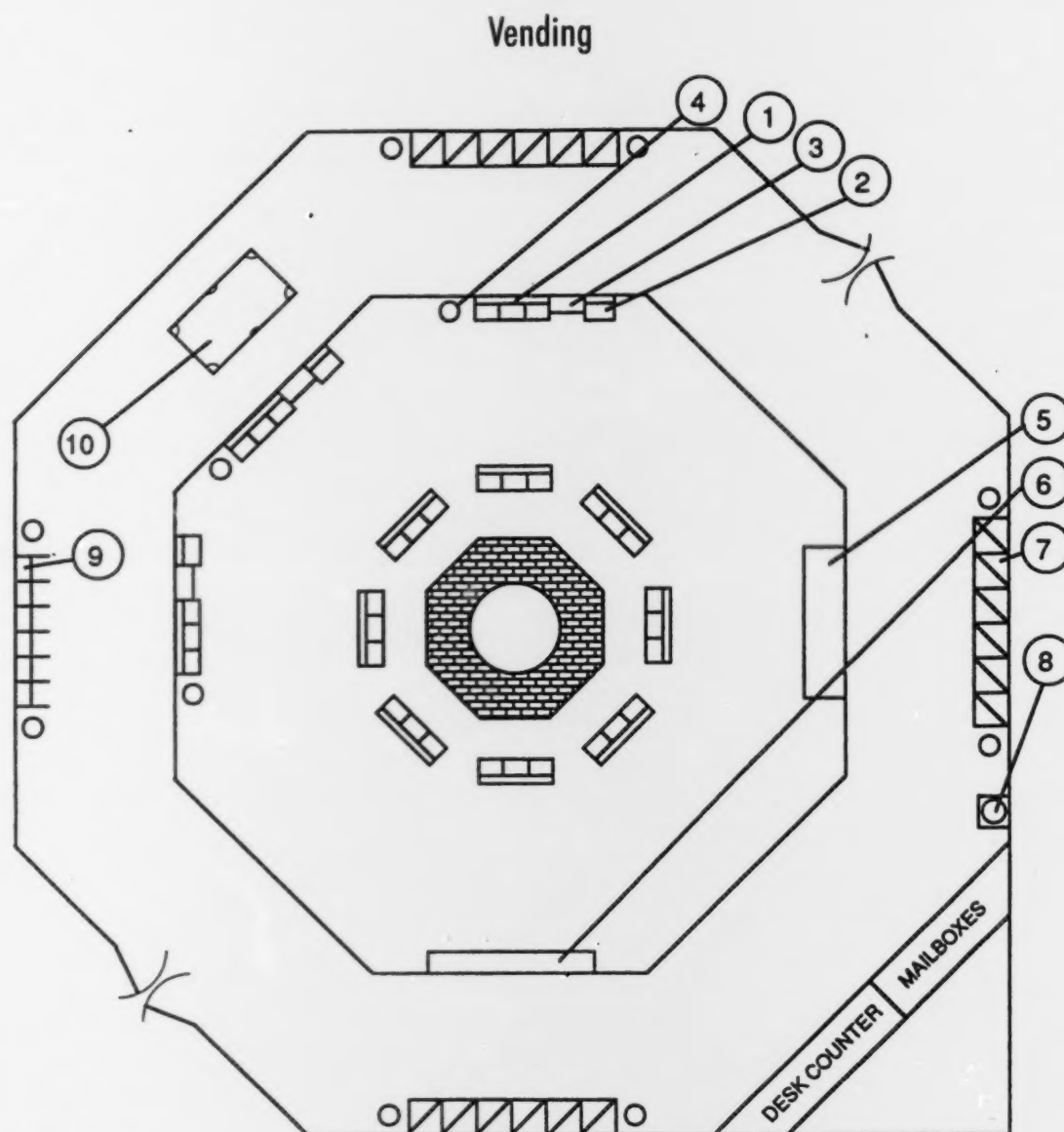
S/A — Semiannually / 0.008

A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 300 cleanable square feet (CSF).



"Standard" Lounge Area (Middle Octagon)

Construction

Fireplace: Brick
 Floor: Carpet - 1,800 SF
 Ceiling: 8' Dropped, exposed grid
 Lamps: 100-150 watt
 recessed floods

Features

1. 11 - Overstuffed couches
2. 3 - Overstuffed chairs
3. 3 - End tables
4. 3 - Torpedo waste receptacles
5. Big screen TV - 10 SF
6. 1 - Display case - 24 SF glass

"Standard" Vending Area (Outer Octagon)

Construction

Floor: Terrazzo - 2,400 SF
 Walls: Brick
 Doors: Glass - 84 SF
 Ceiling: 8' Dropped, exposed grid
 Lamps: 72 - 1' x 4' Two-tube
 fluorescent

Features

4. Torpedo waste receptacle
7. 18 - Vending/game machines
8. Wall mounted drinking fountain
9. 6 - Pay telephones
10. Pool table

Matrix 19 Vending

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Dust flat surfaces	A/D 5.00	W 2.00	M 0.48	Q 0.16	A 0.04	10.00
Sweep/dust-mop floors	D 24.90	D 24.90	D 24.90	D 24.90	D 24.90	24.90
Relamp	D/A 0.66	D/A 0.66	D/A 0.66	D/A 0.66	D/A 0.66	3.91
Clean water fountains	D 5.00	D 5.00	D 5.00	D 5.00	D 5.00	5.00
Empty waste containers	D 10.40	D 10.40	D 10.40	D 10.40	D 10.40	10.40
Clean telephones	D 8.20	D 8.20	D 8.20	D 8.20	D 8.20	8.20
Empty and clean ashtrays	D 1.80	D 1.80	D 1.80	D 1.80	D 1.80	1.80
Spray-buff/burnish floors	D 86.70	W 17.34	M 4.16	Q 1.39	A 0.35	86.70
Spot-clean walls, doors, and vending machines	D 45.00	W 9.00	M 2.16	Q 0.72	A 0.18	45.00
Adjusted minutes subtotal	187.66	79.30	57.76	53.23	51.53	
CSF/Custodian	5,371	12,711	17,452	18,937	19,561	
Project Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean trash containers	W 3.76	M 0.90	Q 0.30	S/A 0.15	A 0.08	18.80
Dust vents	W 2.06	M 0.49	Q 0.16	S/A 0.08	A 0.04	10.30
Interim floor care	S/A 1.81	S/A 1.81				226.20
Project-clean light fixtures	Q 3.97	S/A 1.99	S/A 1.99	A 0.99		248.40
Auto-scrub floors	W 6.12	M 1.47	Q 0.49	S/A 0.24	A 0.12	30.60
Strip/refinish floors	S/A 4.90	S/A 4.90	A 2.45	A 2.45		611.90
Adjusted minutes subtotal	22.62	11.56	5.39	3.92	0.24	
Total adjusted minutes	210.28	90.86	63.15	57.15	51.77	
CSF/Custodian	4,794	11,094	15,962	17,638	19,471	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

A — Annually / 0.004

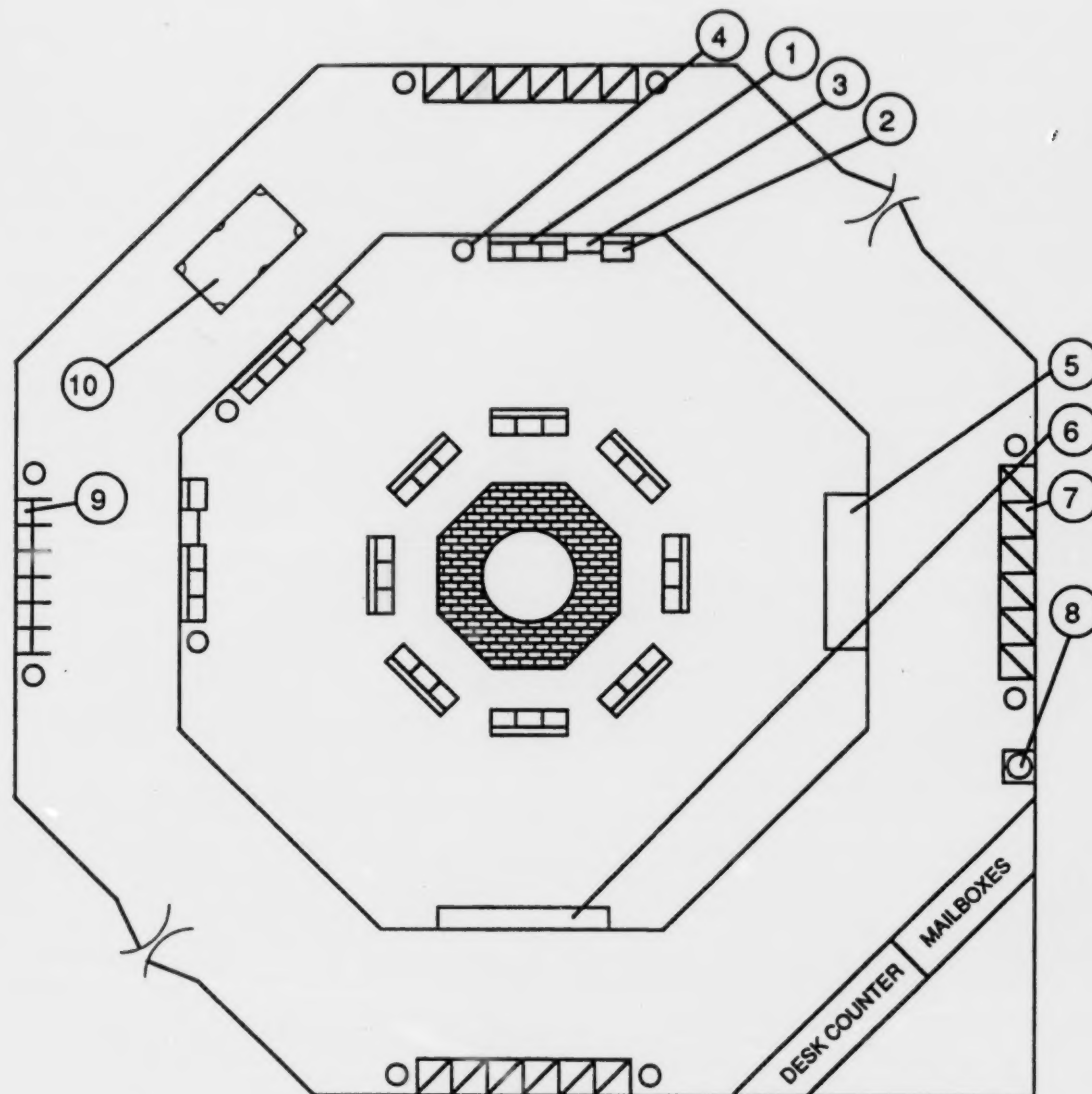
D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 2,400 cleanable square feet (CSF).

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Dormitory Lounge



"Standard" Lounge Area (Middle Octagon)

Construction

Fireplace: Brick
 Floor: Carpet - 1,800 SF
 Ceiling: 8' Dropped, exposed grid
 Lamps: 100-150 watt
 recessed floods

Features

1. 11 - Overstuffed couches
2. 3 - Overstuffed chairs
3. 3 - End tables
4. 3 - Torpedo waste receptacles
5. Big screen TV - 10 SF
6. 1 - Display case - 24 SF glass

"Standard" Vending Area (Outer Octagon)

Construction

Floor: Terrazzo - 2,400 SF
 Walls: Brick
 Doors: Glass - 84 SF
 Ceiling: 8' Dropped, exposed grid
 Lamps: 72 - 1' x 4' Two-tube
 fluorescent

Features

4. Torpedo waste receptacle
7. 18 - Vending/game machines
8. Wall mounted drinking fountain
9. 6 - Pay telephones
10. Pool table

Matrix 20 Dormitory Lounge

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Dust flat surfaces, fireplace, and furniture	A/D 5.85	W 2.34	M 0.56	Q 0.19		11.70
Vacuum carpet/straighten furniture	D 45.60	D 45.60	A/D 22.80	W 9.12	M 2.19	45.60
Spot-clean carpets	D 22.90	A/D 11.45	W 4.58	M 1.10	Q 0.37	22.90
Relamp	D/A 0.80	D/A 0.80	D/A 0.80	D/A 0.80	D/A 0.80	1.20
Clean glass and TV screen	D 7.90	D 7.90	A/D 3.95	W 1.58		7.90
Empty waste containers	D 4.30	D 4.30	D 4.30	A/D 2.15	W 0.86	4.30
Adjusted minutes subtotal	87.35	72.39	36.99	14.94	4.22	
CSF/Custodian	8,655	10,443	20,438	50,602	179,147	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Clean trash containers	W 1.16	M 0.28	Q 0.09	S/A 0.05	A 0.02	5.80
Interim carpet care	W 20.24	M 4.86	Q 1.62	S/A 0.81		101.20
Project-clean upholstered furniture	W 27.58	M 6.62	Q 2.21	S/A 1.10	A 0.55	137.90
Restorative carpet care	M 8.96	Q 2.99	S/A 1.49	A 0.75	A 0.75	186.60
Adjusted minutes subtotal	57.94	14.74	5.41	2.71	1.32	
Total adjusted minutes	145.29	87.13	42.40	17.64	5.54	
CSF/Custodian	5,203	8,677	17,830	42,857	136,462	

Frequency Codes/Daily Adjustment Factor

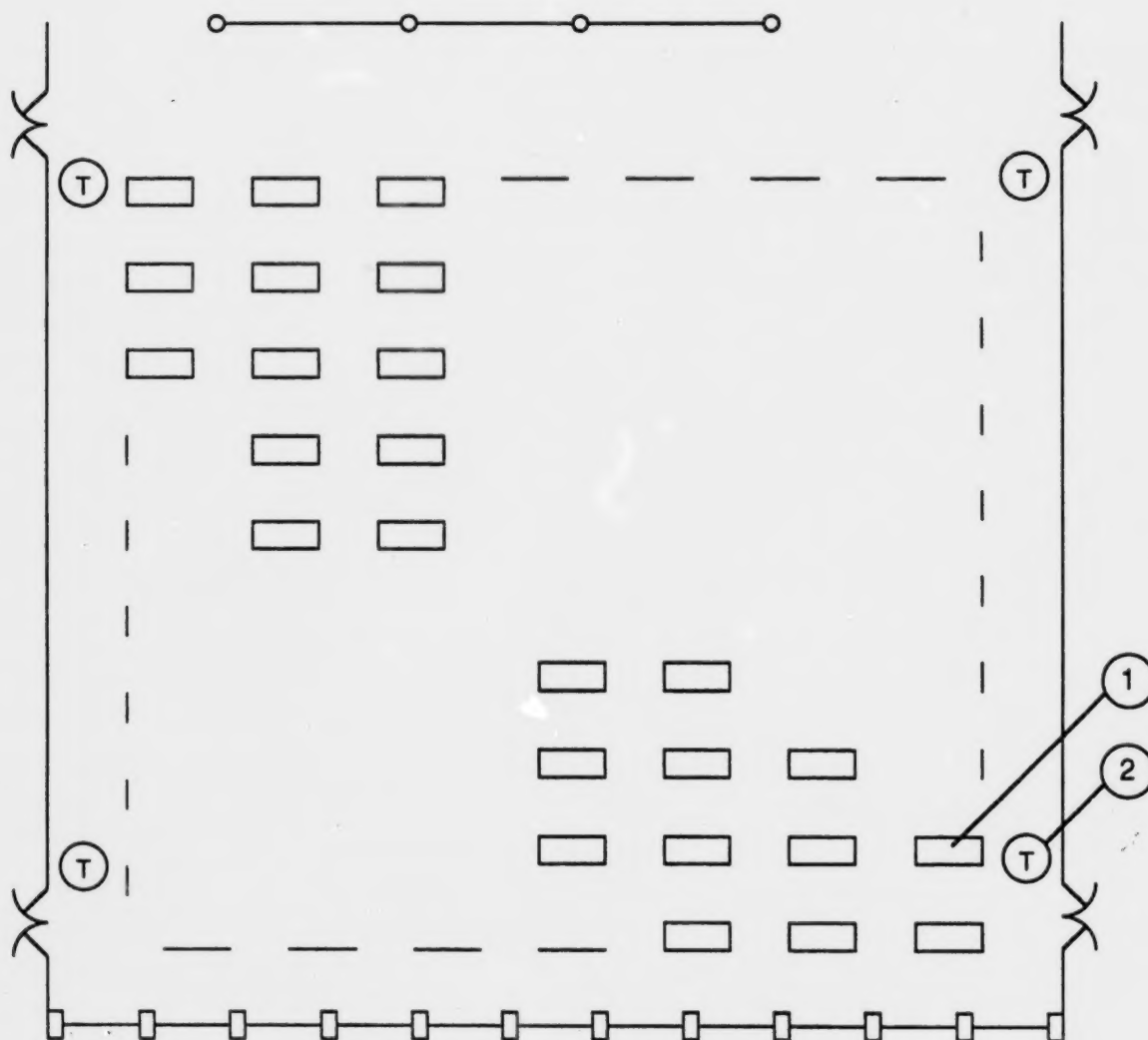
D — Daily / 1.00	Q — Quarterly / 0.016
A/D — Alternate days / 0.50	S/A — Semiannually / 0.008
W — Weekly / 0.20	A — Annually / 0.004
M — Monthly / 0.048	D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 1,800 cleanable square feet (CSF).

Cafeteria with Carpet

Food Service Area (Not Shown) Not Serviced By Custodians



Construction

Floor: Carpet 100' x 100' (10,000 CSF)
 Walls: Gypsum semi-gloss latex paint
 Windows: One wall, floor to ceiling (15 ft.) with venetian blinds (1,500 CSF)
 Window Ledge: 100' long
 Doors: 6' Wide double, glass
 Ceiling: 2' x 4' Dropped, exposed grid
 Lighting: 100 - 1' x 4' Two-tube fluorescent

Features

1. 80 - Six person (30" x 72") movable tables with attached seating
2. 4 - Torpedo trash cans

Matrix 21 Cafeteria with Carpet

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Vacuum carpet/straighten furniture	D 124.09	D 124.09				124.09
Dust flat surfaces (window ledge)	D 21.40	A/D 10.70				21.40
Wipe tables and seating	D 50.60	D 50.60				50.60
Spot-clean walls and doors	D 30.40	W 6.08				30.40
Empty trash containers	D 7.60	D 7.60				7.60
Spot-clean carpets	D 88.25	A/D 44.13				88.25
Relamp	D/A 0.66	D/A 0.66				3.91
Adjusted minutes subtotal CSF/Custodian	323.00 13,003	243.86 17,223				
Project Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Interim carpet care	W 46.66	M 11.20				233.29
Restorative carpet care	M 23.12	Q 7.71				481.73
Project-clean light fixtures	S/A 1.58	A 0.79				197.50
Dust blinds	W 18.26	M 4.38				91.30
Project-clean tables and seating	Q 8.00	S/A 4.00				500.00
Clean windows	S/A 1.61	A 0.80				201.00
Clean trash containers	W 1.30	M 0.31				6.50
Adjusted minutes subtotal	100.53	29.19				
Total adjusted minutes CSF/Custodian	423.53 9,917	273.05 15,382				

Frequency Codes/Daily Adjustment Factor

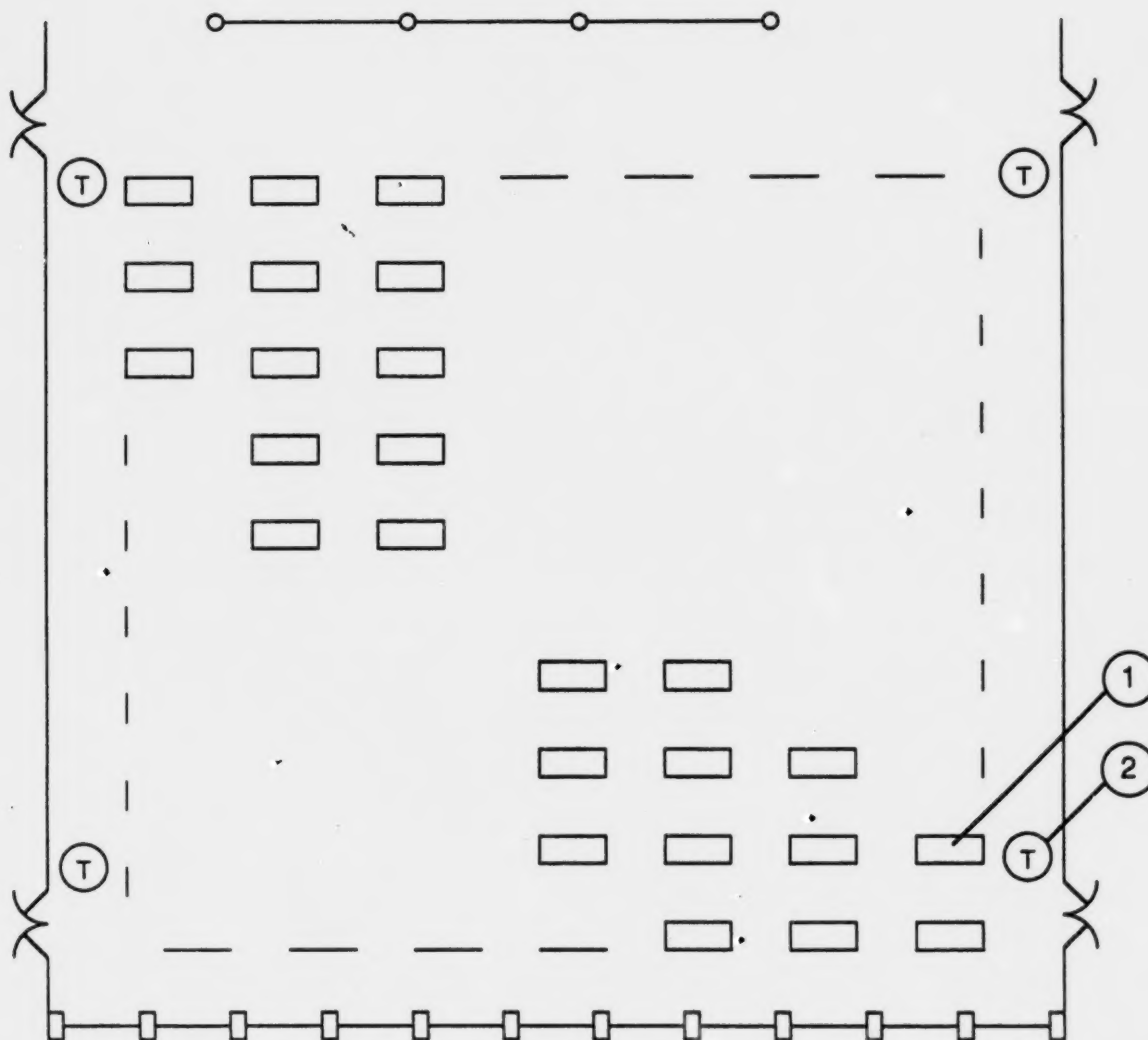
D — Daily / 1.00	Q — Quarterly / 0.016
A/D — Alternate days / 0.50	S/A — Semiannually / 0.008
W — Weekly / 0.20	A — Annually / 0.004
M — Monthly / 0.048	D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 10,000 cleanable square feet (CSF).

Cafeteria with Hard Floor

Food Service Area (Not Shown) Not Serviced By Custodians



Construction

Floor: Vinyl tile 100' x 100' (10,000 CSF)
 Walls: Gypsum semi-gloss latex paint
 Windows: One wall, floor to ceiling (15 ft.) with venetian blinds (1,500 CSF)

Window Ledge: 100' long

Doors: 6' Wide double, glass

Ceiling: 2' x 4' Dropped, exposed grid

Lighting: 100 - 1' x 4' Two-tube fluorescent

Features

1. 80 - Six person (30" x 72") movable tables with attached seating
2. 4 - Torpedo trash cans

Matrix 22 Cafeteria with Hard Floor

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Dust flat surfaces (window ledge)	D 21.40	A/D 10.70				21.40
Spray-buff/burnish floors	A/D 81.88	W 32.75				163.75
Relamp	D/A 0.66	D/A 0.66				3.91
Wipe tables and seating	D 50.60	D 50.60				50.60
Spot-clean walls and doors	D 30.40	W 6.08				30.40
Empty trash containers	D 7.60	D 7.60				7.60
Damp-map floors	D 82.50	D 82.50				82.50
Sweep/dust-map floor	D 42.50	D 42.50				42.50
Adjusted minutes subtotal CSF/Custodian	317.54 13,249	233.39 17,996				
Project Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Strip/refinish floors	Q 22.70	S/A 11.35				1419.00
Project-clean light fixtures	S/A 1.58	A 0.79				197.50
Interim floor care	Q 3.24	S/A 1.62				202.50
Dust blinds	W 18.26	M 4.38				91.30
Project-clean tables and seating	Q 8.00	S/A 4.00				500.00
Clean windows	S/A 1.61	A 0.80				201.00
Clean trash containers	W 1.30	M 0.31				6.50
Adjusted minutes subtotal	56.69	23.25				
Total adjusted minutes	374.23	256.64				
CSF/Custodian	11,223	16,365				

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

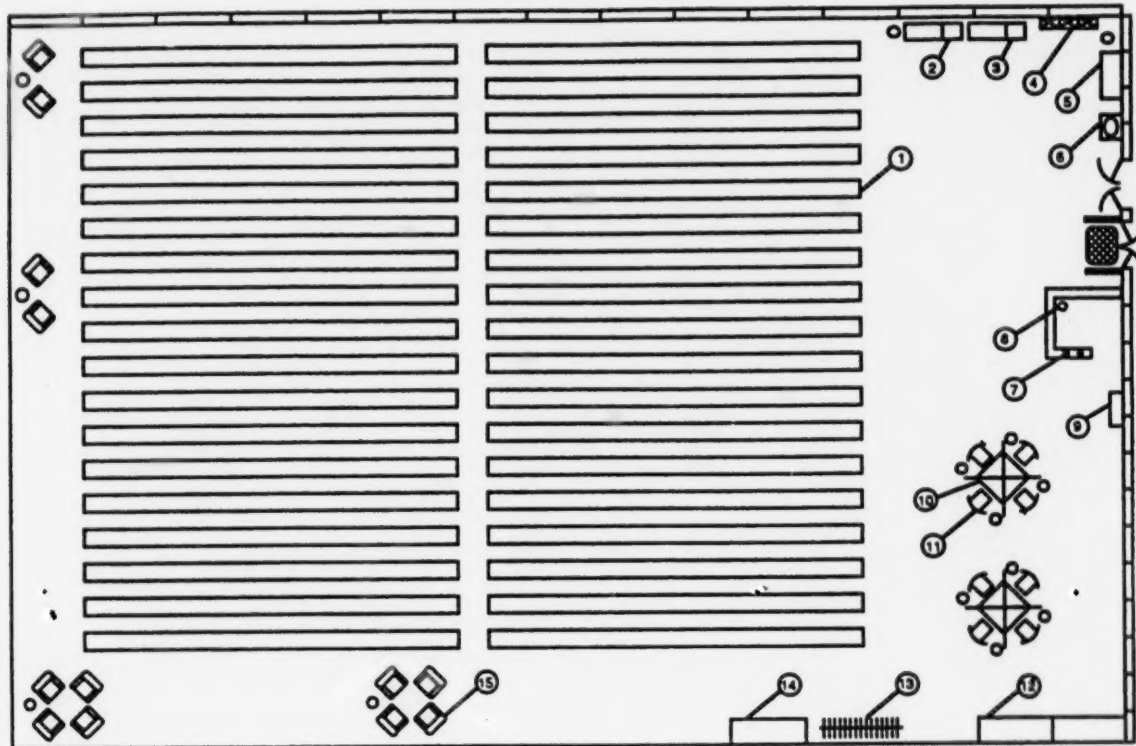
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 10,000 cleanable square feet (CSF).

Library with Carpet

**Construction**

150 x 100 (15,000 SF)

Floor: Carpet - 11,400 SF (less bookshelf footprints)

Walls: (8' ceiling):

2 - Brick (2,000 SF)

2 - Glass - 2,000 SF (one side)

Ceiling: Dropped, exposed grid

Lamps: 400 - 1' x 4' Two-tube fluorescent

Entrance Door: Glass

Security Exit Door: Glass

Ceiling Air Vents: 30

Check-out/Reference Desk: (100 SF
horizontal surface)

Features

1. 36 - 2' x 50' bookshelves (2½ ft. space
between)

2. Manual card file with writing table

3. Computer card file with writing table

4. 3 - Recycling containers

5. Copier

6. Drinking fountain

7. 2 - Pencil sharpeners

8. 15 - Torpedo waste receptacles

9. Fire extinguisher

10. 2 - Four position study carrels (50 SF
horizontal surface)

11. 8 - Side chairs

12. 2 - Walnut display cases (8'W x 4'H x 1.5'D)

13. Newspaper rack

14. Magazine rack

15. 12 - Overstuffed chairs

Matrix 23 Library with Carpet

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Empty waste containers	D 20.88	D 20.88	D 20.88	A/D 10.44	W 4.18	20.88
Vacuum carpet and straighten furniture	D 186.14	A/D 93.07	W 37.23	W 37.23	W 37.23	186.14
Empty pencil sharpeners	D 1.36	D 1.36	D 1.36	A/D 0.68		1.36
Spot-clean carpet	D 77.67	W 15.53	M 3.73	Q 1.24	Q 1.24	77.76
Relamp	D/A 1.00	D/A 1.00	D/A 1.00	D/A 1.00	D/A 1.00	2.60
Spot-clean walls	A/D 23.00	W 9.20	M 2.21	Q 0.74		46.00
Dust flat surfaces	A/D 9.25	W 3.70	M 0.89	Q 0.30		18.50
Clean water fountains	D 2.93	D 2.93	D 2.93	D 2.93	D 2.93	2.93
Adjusted minutes subtotal	322.23	147.68	70.22	54.56	46.58	
CSF/Custodian	19,551	42,663	89,718	115,490	135,251	
Project Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean trash containers	M 1.22	M 1.22	Q 0.41	S/A 0.20		25.46
Interim carpet care	Q 5.60	Q 5.60	Q 5.60			349.93
Project-clean upholstered furniture	Q 2.15	Q 2.15	Q 2.15			134.57
Clean windows	Q 4.31	S/A 2.16	S/A 2.16	A 1.08		269.50
Project-clean light fixtures	S/A 7.27	S/A 7.27	A 3.63			908.15
Restorative carpet care	A 3.09	A 3.09	A 3.09	A 3.09	A 3.09	772.60
Dust vents	W 6.67	M 1.60	Q 0.53	S/A 0.27		33.36
Adjusted minutes subtotal	30.31	23.09	16.50	4.64	3.09	
Total adjusted minutes	352.54	170.76	86.72	59.20	49.67	
CSF/Custodian	17,870	36,894	72,648	106,419	126,837	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

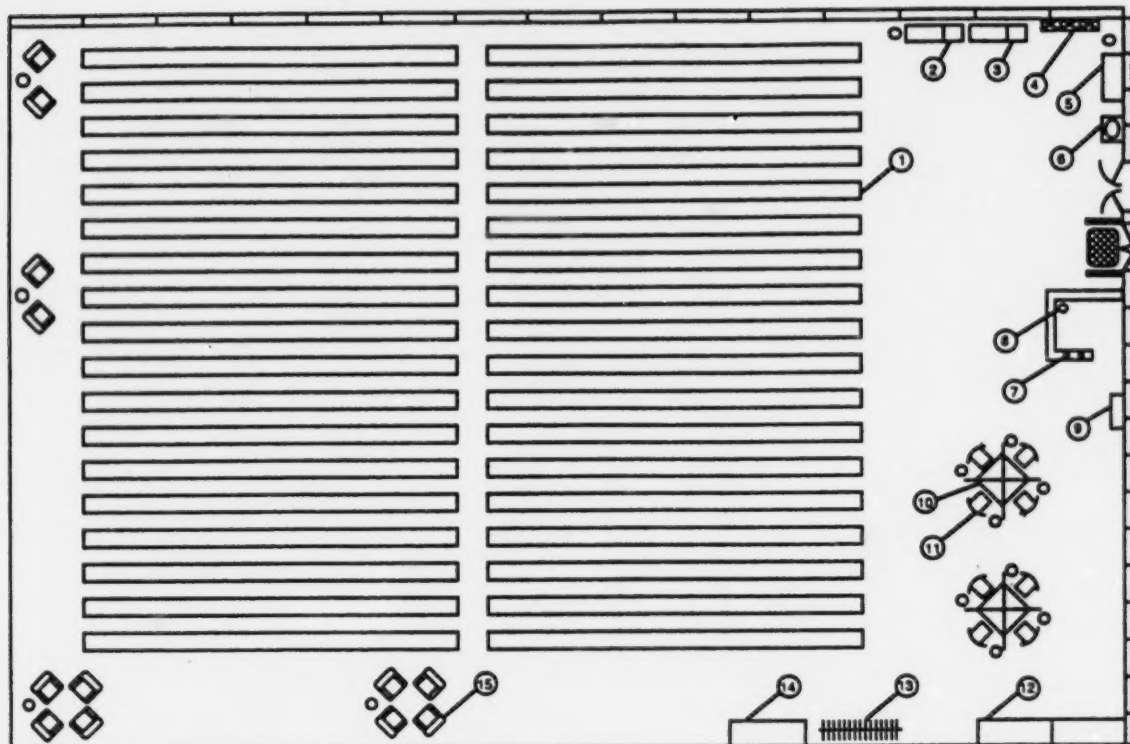
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 15,000 cleanable square feet (CSF)

Library with Hard Floor

**Construction**

150 x 100 (15,000 SF)

Floor: Vinyl composition tile - 11,400 SF
(less bookshelf footprints)

Walls: (8' ceiling):

2 - Brick (2,000 SF)

2 - Glass - 2,000 SF (one side)

Ceiling: Dropped, exposed grid

Lamps: 400 - 1' x 4' Two-tube fluorescent

Entrance Door: Glass

Security Exit Door: Glass

Ceiling Air Vents: 30

Check-out/Reference Desk: (100 SF
horizontal surface)**Features**1. 36 - 2' x 50' bookshelves (2½ ft. space
between)

2. Manual card file with writing table

3. Computer card file with writing table

4. 3 - Recycling containers

5. Copier

6. Drinking fountain

7. 2 - Pencil sharpeners

8. 15 - Torpedo waste receptacles

9. Fire extinguisher

10. 2 - Four position study carrels (50 SF
horizontal surface)

11. 8 - Side chairs

12. 2 - Walnut display cases (8'W x 4'H x 1.5'D)

13. Newspaper rack

14. Magazine rack

15. 12 - Overstuffed chairs

Matrix 24 Library with Hard Floor

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Empty waste containers	D 20.88	D 20.88	D 20.88	A/D 10.44	W 4.18	20.88
Sweep, dust-mop floors	D 205.00	D 205.00	D 205.00	A/D 102.50	A/D 102.50	205.00
Empty pencil sharpeners	D 1.36	D 1.36	D 1.36	A/D 0.68		1.36
Damp-mop floors	D 213.80	M 10.26	M 10.26	S/A 1.71		213.80
Relamp	D/A 1.00	D/A 1.00	D/A 1.00	D/A 1.00	D/A 1.00	2.60
Spot-clean walls	A/D 23.00	W 9.20	M 2.21	Q 0.74		46.00
Dust flat surfaces	A/D 9.25	W 3.70	M 0.89	Q 0.30		18.50
Clean water fountains	D 2.93	D 2.93	D 2.93	D 2.93	D 2.93	2.93
Adjusted minutes subtotal	477.22	254.33	244.53	120.30	110.61	
CSF/Custodian	13,201	24,771	25,764	52,369	56,957	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Clean trash containers	M 1.22	M 1.22	Q 0.41	S/A 0.20		25.46
Interim floor care	Q 21.94	Q 21.94				1,371.00
Project-clean upholstered furniture	Q 2.15	Q 2.15	Q 2.15			134.57
Clean windows	Q 4.31	S/A 2.16	S/A 2.16	A 1.08		269.50
Project-clean light fixtures	S/A 7.27	S/A 7.27	A 3.63			908.15
Spray-buff/burnish floors	W 46.76	M 11.22	Q 3.74	S/A 1.87		233.80
Dust vents	W 6.67	M 1.60	Q 0.53	S/A 0.27		33.36
Strip /refinish floors	A 10.42	A 0.42	A 10.42	A 10.42		2,603.80
Adjusted minutes subtotal	100.74	57.98	23.04	13.84		
Total adjusted minutes	577.96	312.31	267.57	134.14	110.61	
CSF/Custodian	10,900	20,172	23,545	46,966	56,957	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

A — Annually / 0.004

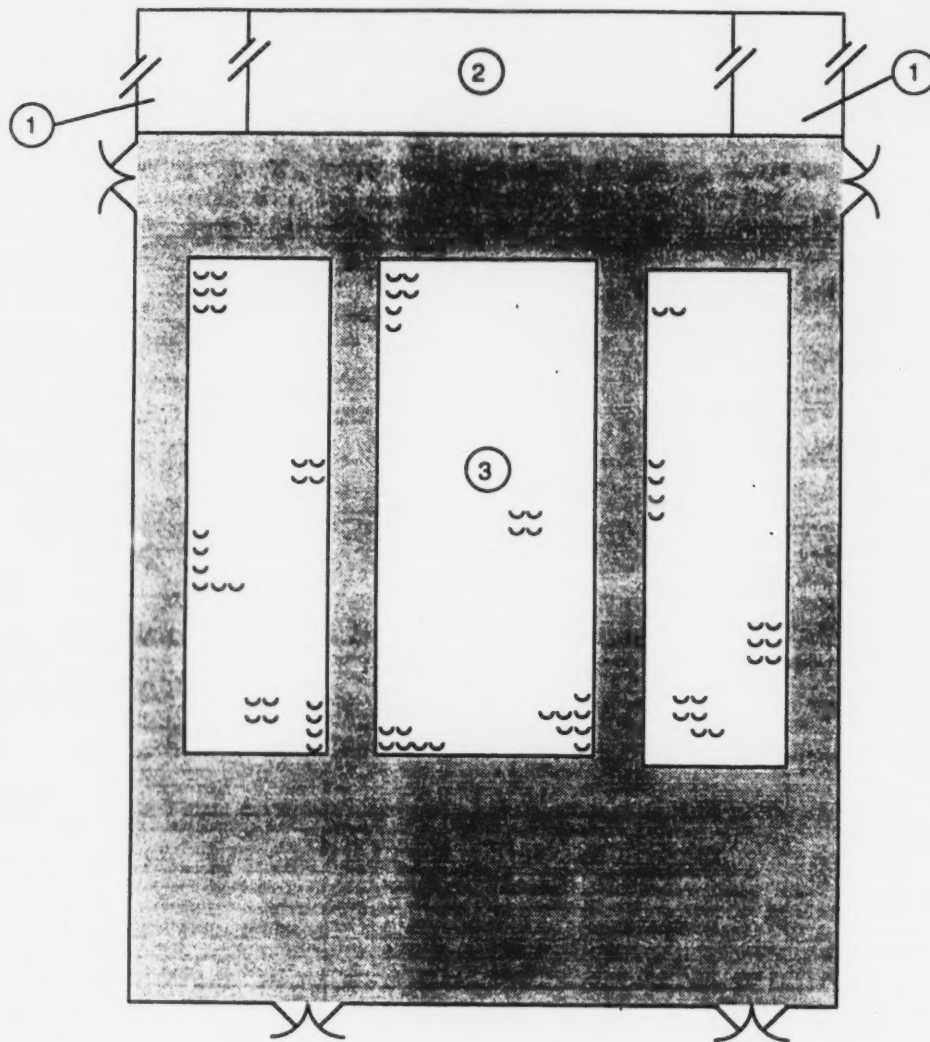
D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 15,000 cleanable square feet (CSF).

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Auditorium Seating and Foyer



Construction

Floor: Aisles (6' wide) carpet
 Front (15' deep) carpet
 Lobby (30' deep) carpet - total 5,220 SF
 Under seats vinyl tile - 3,600 SF
 Stage (60' x 30') wood - 1,800 SF
 Wings (2 - 12' x 30') wood - 720 SF
Walls: Gypsum flat, semi-gloss paint
Doors: 4 - double, metal (painted) - 84 SF with 1/2 glass - 84 SF
Ceiling: Plaster
Lighting: Lobby area only, recessed 150' with floods - 80
 Exit (fluorescent) - 4
Seating: 1,000 - Upholstered seats

Features

1. Wings - 12' x 30'
2. Stage - 60' x 30'
3. 25 rows of 24 seats across 1" in 12" slope

Total square footage cleaned including auditorium, stage and wings - 11,340 SF

Matrix 25 Auditorium Seating and Foyer

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Sweep, dust-map under seating	D 38.40	D 38.40	A/D 19.20	W 7.68	M 1.84	38.40
Dust furniture arms and backs	D 254	W 50.80	M 12.19	Q 4.06		254.00
Spot-clean walls and doors	D 44.50	W 8.90	M 2.14	S/A 0.36		44.50
Relamp	D/A 0.32	D/A 0.32	D/A 0.32	D/A 0.32	D/A 0.32	4.00
Damp-map floor under seating	D 79.18	D 79.18	A/D 39.59	W 15.84	M 3.80	79.18
Vacuum carpet	D 120.50	A/D 60.25	W 24.10	W 24.10	Q 1.93	120.50
Spot-clean carpet	D 74.11	W 14.82	M 3.56	Q 1.19	Q 1.19	74.11
Adjusted minutes subtotal CSF/Custodian	611.01 6,063	252.67 14,661	101.10 36,641	53.55 69,176	9.08 407,974	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Restorative carpet care	A 1.54	A 1.54	A 1.54	A 1.54		385.09
Strip/refinish floor under seating	A 2.75	A 2.75	A 2.75			686.40
Project-clean upholstered seats	Q 32.28	A 8.07	A 8.07			2,017.45
Adjusted minutes subtotal	36.57	12.36	12.36	1.54		
Total adjusted minutes CSF/Custodian	647.58 5,720	265.03 13,977	113.46 32,649	55.09 67,243	9.08 407,974	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

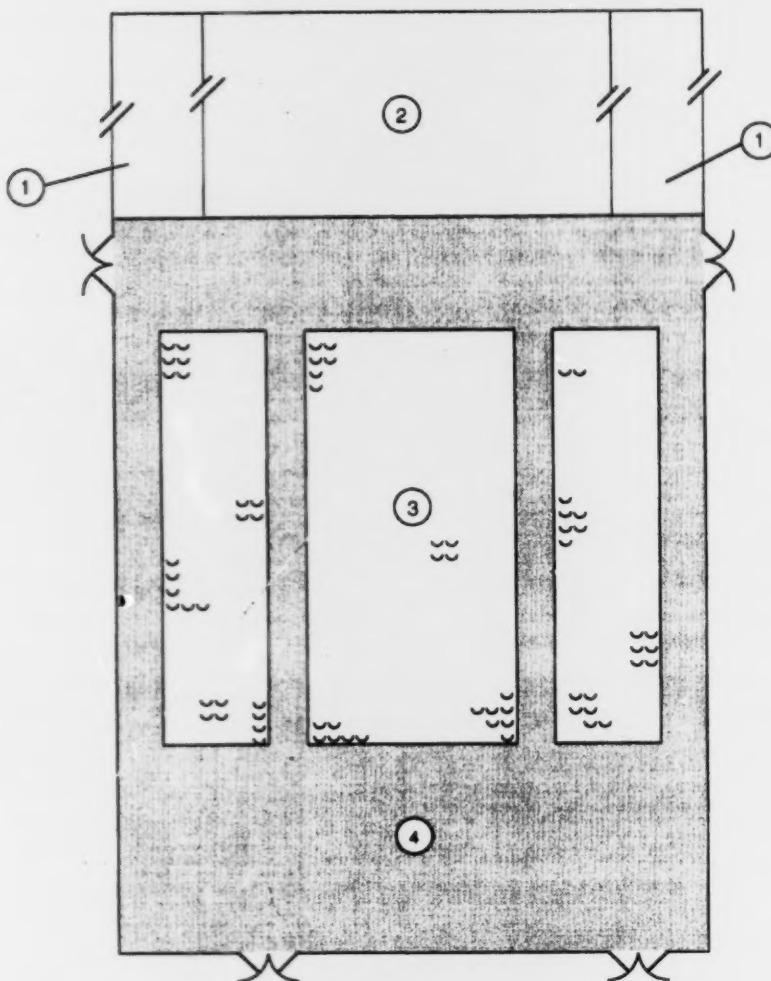
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 8,820 cleanable square feet (CSF).

Auditorium Stage and Wings



Construction

Floor: Aisles 4 (6' x 60' wide) carpet — 1,400 SF
Front (15' x 84' wide) carpet — 1,260 SF
Lobby (30' x 84' wide) carpet — total 2,520 SF
Under seats vinyl tile — 3,600 SF
Stage (60' x 30') wood — 1,800 SF
Wings (2 - 12' x 30') wood — 720 SF

Walls: Gypsum flat, semi-gloss paint
Doors: 4 - double, metal (painted) - 84 SF with 1/2 glass - 84 SF
Ceiling: Plaster, 8' high over lobby area
Lighting: Lobby area only, recessed 150' with floods - 80
Exit (fluorescent) - 4
Seating: 1,000 - Upholstered seats

Features

Stage & Wings

1. Wings - 2: 12' x 30', 720 SF total
2. Stage - 60' x 30', 1,800 SF

Auditorium & Lobby

3. Auditorium: 25 rows of 40 seats across with 1" in 12" slope
Aisles: 4: 6' x 60' - 1,400 SF total
4. Lobby - 30' x 84' - 2,520 SF total

Matrix 26 Auditorium Stage and Wings

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Damp-mop floor	D 36.73	A/D 18.37	W 7.35	M 1.76		36.73
Sweep, dust-mop floor	D 18.27	D 18.27	W 3.65	M 0.88		18.27
Adjusted minutes subtotal	55.00	36.64	11.00	2.64		
CSF/Custodian	19,244	28,886	96,218	400,000		
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Strip, refinish wood floor	A 1.78	A 1.78	A .78	A 1.78		444.33
Adjusted minutes subtotal	1.78	1.78	1.78	1.78		
Total adjusted minutes	56.78	38.42	12.78	4.42		
CSF/Custodian	18,640	27,548	82,817	239,457		

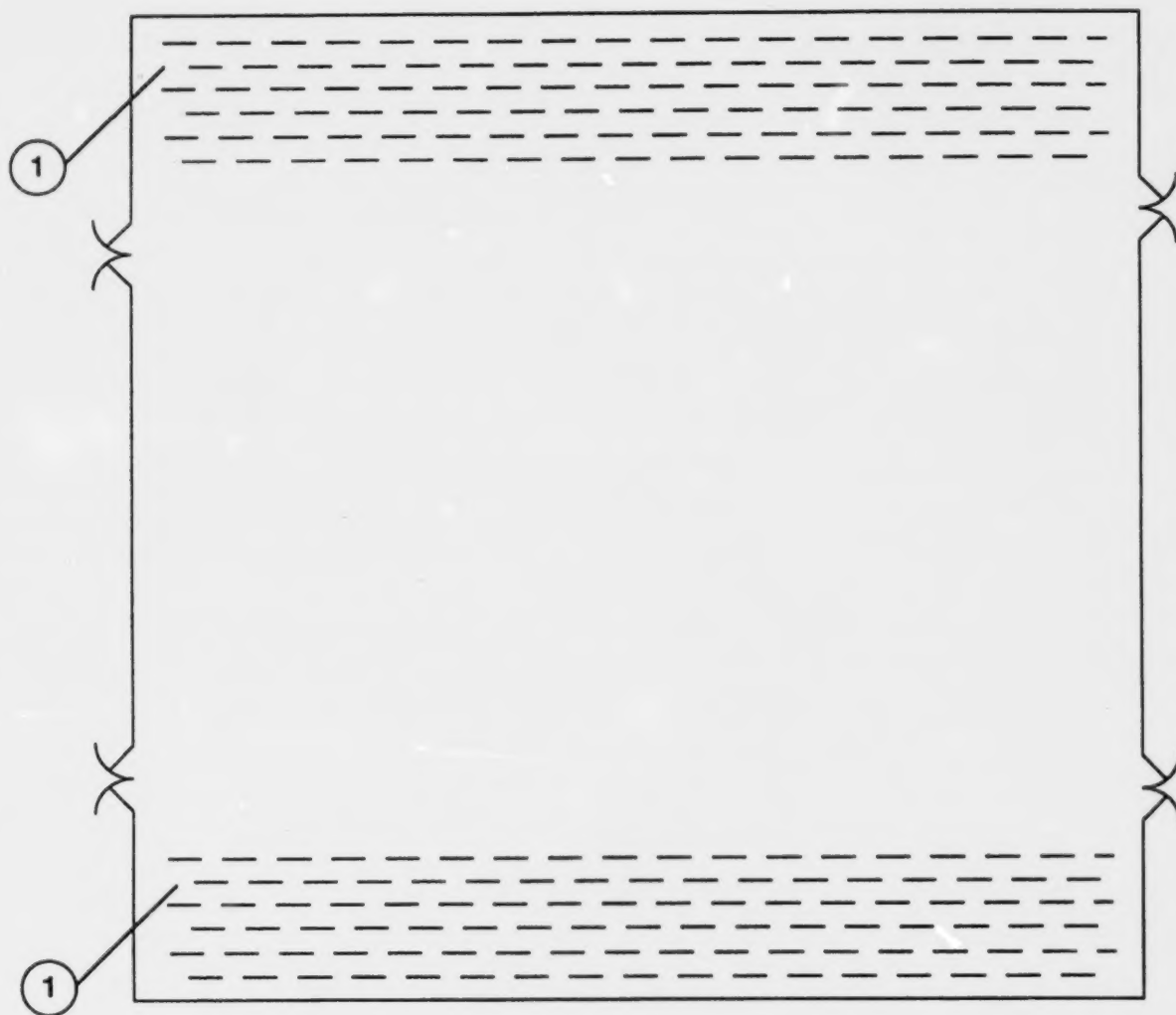
Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00	Q — Quarterly / 0.016
A/D — Alternate days / 0.50	S/A — Semiannually / 0.008
W — Weekly / 0.20	A — Annually / 0.004
M — Monthly / 0.048	D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 2,520 cleanable square feet (CSF).

Gymnasium (Wood Floor)



Construction

Floor: Hardwood, clear finish 100' x 100' (10,000 csf)
 Walls: Gypsum, semi-gloss latex finish
 Doors: 4 - 6' double, with 2' x 2' glass
 Ceiling: Exposed grid with tectum sections
 Lighting: Metal halid (not serviced by custodians)

Features

1. 2 - Full width sets of retractable bleachers; wood or plastic seating (3,000 SF, total)

Matrix 27 Gymnasium (Wood Floor)

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
	D	W	M	Q	A	
Spot-clean walls, doors, center partition	95.27	19.05	4.57	1.52	0.38	95.27
	D	D	A/D	W	M	
Sweep/dust-mop floor, bleachers retracted	71.08	71.08	35.54	14.22	3.41	71.08
Adjusted minutes subtotal	166.35	90.13	40.11	15.74	3.79	
CSF/Custodian	25,248	46,600	104,712	266,836	1,108,180	
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
	Q	A				
Project-clean bleacher framework	6.73	1.68				420.44
	M	Q	A			
Project-clean multiple seating (bleachers)	26.47	8.82	2.21			551.40
	S/A	A	A			
Strip and refinish floor	14.76	7.38	7.38			1845.56
	W	M	Q	A		
Dust flat surfaces, including bleachers	29.08	6.98	2.33	0.58		145.40
Adjusted minutes subtotal	77.04	24.87	11.91	0.58	0.00	
Total adjusted minutes	243.39	115.00	52.03	16.32	3.79	
CSF/Custodian	17,256	36,522	80,723	257,353	1,108,180	

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

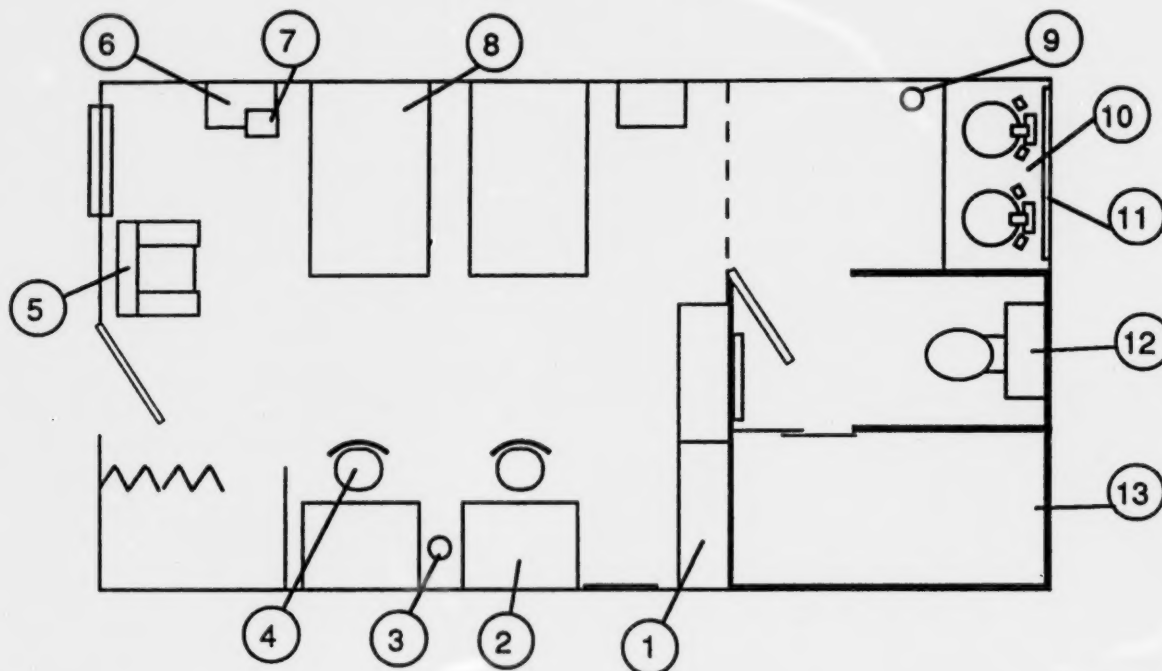
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 10,000 cleanable square feet (CSF).

Dormitory Washroom



Sleeping/Study Room

Construction

Floor: Carpet - 22' x 16'
(362 SF)
Walls: Textured gypsum/semi-
latex gloss paint
Ceiling: Textured gypsum, flat
latex paint
Window: 3' wide x 4' high
Supply Air Vent: 1' x 2' under window
Return Air Vent: 1' x 2' between desk/
dresser
Closet: With folding door
Lighting: 3 - Two-tube 1' x 4'
fluorescent

Features

1. 2 - Dressers
2. 2 - Desks
3. 1 - Wastebasket
4. 2 - Desk chair
5. 1 - Overstuffed chair
6. 2 - Side tables with lamps
7. 1 - Telephone
8. 2 - Twin beds

Washroom

Construction

Floor: Tile 8' x 16' (128 SF)
Walls: Tile
Ceiling: Textured gypsum with
gloss latex paint
Exhaust Fan: In toilet/shower area
Lighting: 1 - Two-tube 1' x 4'
fluorescent in sink area
Lighting: 1 - 100 watt waterproof
fixture in toilet/shower area

Features

9. 1 Wastebasket
10. Double washbowl lavatory
11. Mirror: 3' x 5'
12. Toilet
13. Shower

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Matrix 28 Dormitory Washroom

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Wet-mop floor	D 4.25	W 0.85				4.25
Clean/disinfect toilet bowls	D 2.88	D 2.88				2.88
Clean/disinfect shower room walls, etc.	D 13.44	D 13.44				13.44
Sweep, dust-mop floor	D 1.75	D 1.75				1.75
Clean washbowls	D 4.75	D 4.75				4.75
Clean mirror	D 1.43	D 1.43				1.43
Spot-clean walls and doors	D 3.51	W 0.70				3.51
Empty waste containers	D 1.25	D 1.25				1.25
Restock soap, toilet paper	D 2.14	D 2.14				2.14
Relamp incandescent	D/A 0.03	D/A 0.03				1.00
Dust open, flat surfaces	D 0.31	W 0.06				0.31
Adjusted minutes subtotal	35.74	29.28				
CSF/Custodian	1,504	1,836				
Project Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Dust vents	M 0.06	M 0.06				1.35
Clean trash containers	W 0.37	M 0.09				1.85
Project-clean light fixtures	Q 0.45	S/A 0.23				28.17
Adjusted minutes subtotal	0.88	0.38				
Total adjusted minutes	36.62	29.66				
CSF/Custodian	1,468	1,813				

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

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Q — Quarterly / 0.016

S/A — Semiannually / 0.008

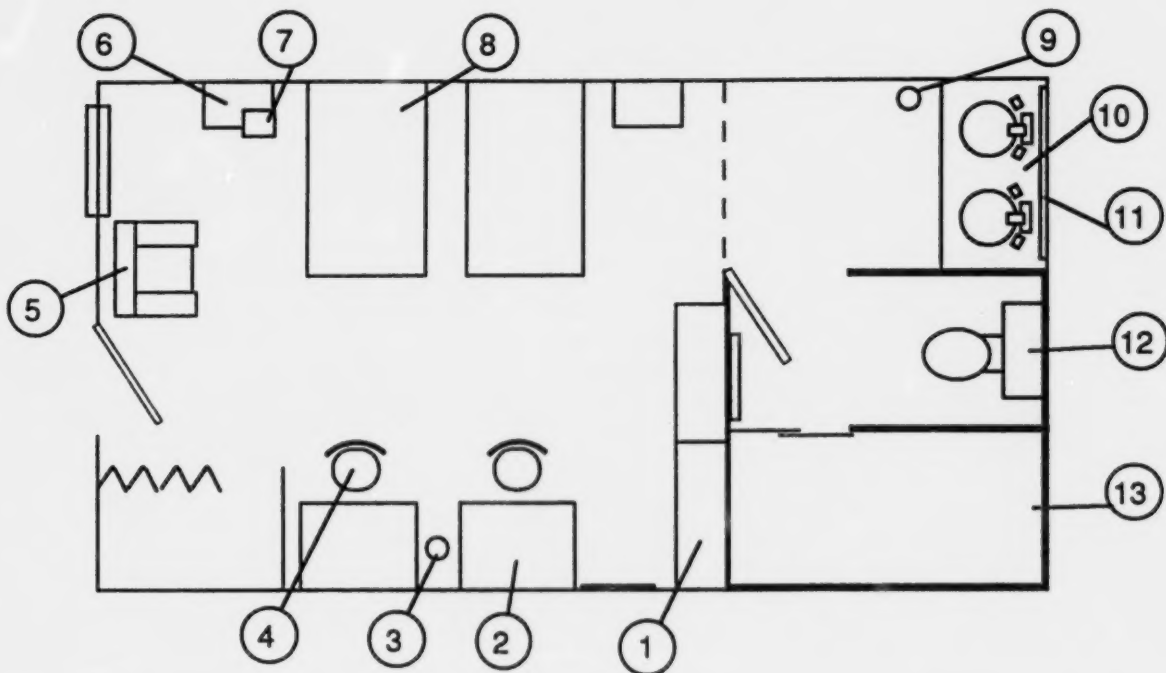
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 128 cleanable square feet (CSF).

Dormitory Sleep/Study



Sleeping/Study Room

Construction

Floor: Carpet - 22' x 16'
(362 SF)
Walls: Textured gypsum/semi-
latex gloss paint
Ceiling: Textured gypsum, flat
latex paint
Window: 3' wide x 4' high
Supply Air Vent: 1' x 2' under window
Return Air Vent: 1' x 2' between desk/
dresser
Closet: With folding door
Lighting: 3 - Two-tube 1' x 4'
fluorescent

Features

1. 2 - Dressers
2. 2 - Desks
3. 1 - Wastebasket
4. 2 - Desk chair
5. 1 - Overstuffed chair
6. 2 - Side tables with lamps
7. 1 - Telephone
8. 2 - Twin beds

Washroom

Construction

Floor: Tile 8' x 16' (128 SF)
Walls: Tile
Ceiling: Textured gypsum with
gloss latex paint
Exhaust Fan: In toilet/shower area
Lighting: 1 - Two-tube 1' x 4'
fluorescent in sink area
Lighting: 1 - 100 watt waterproof
fixture in toilet/shower area

Features

9. 1 Wastebasket
10. Double washbowl lavatory
11. Mirror: 3' x 5'
12. Toilet
13. Shower

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Matrix 29 Dormitory Sleep/Study

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Dust flat surfaces and furniture	D 2.71	A/D 1.36	W 0.54	M 0.13		2.71
Spot-clean carpets	D 4.57	D 4.57	A/D 2.29	W 0.91	W 0.91	4.57
Relamp all fixtures	D/A 0.01	D/A 0.01	D/A 0.01	D/A 0.01	D/A 0.01	1.00
Empty waste containers	D 1.25	D 1.25	A/D 0.63	W 0.25	W 0.25	1.25
Spot-clean walls, partitions, doors	D 9.88	D 9.88	A/D 4.94	W 1.98	W 1.98	9.88
Clean telephone	D 0.99	D 0.99	A/D 0.50	W 0.20	W 0.20	0.99
Replace ashtray	D 0.48	D 0.48	A/D 0.24	W 0.10	W 0.10	0.48
Make bed	D 9.25	D 9.25	A/D 4.63	W 1.85		9.25
Vacuum carpet/straighten furniture	D 8.43	D 8.43	A/D 4.22	W 1.69	W 1.69	8.43
Adjusted minutes subtotal	37.57	36.22	17.98	7.11	5.13	
CSF/Custodian	4,047	4,196	8,456	21,383	29,639	
Project Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean windows—both sides	Q 0.10	Q 0.10				6.14
Project clean light fixtures	Q 0.11	Q 0.11				6.57
Restorative carpet care	Q 0.42	Q 0.42	Q 0.42	Q 0.42	Q 0.42	26.29
Project-clean upholstered furniture	Q 0.21	Q 0.21	Q 0.21	Q 0.21	Q 0.21	13.29
Interim carpet care	Q 0.32	Q 0.32	Q 0.32	Q 0.32	Q 0.32	20.00
Dust blinds (over window)	Q 0.04	Q 0.04	Q 0.04	Q 0.04	Q 0.04	2.57
Dust vents	Q 0.03	Q 0.03	Q 0.03	Q 0.03	Q 0.03	2.14
Clean trash container	M 0.11	M 0.11	M 0.11			2.25
Adjusted minutes subtotal	1.34	1.34	1.14	1.03	1.03	
Total adjusted minutes	38.91	37.55	19.11	8.14	6.16	
CSF/Custodian	3,908	4,050	7,956	18,677	24,681	

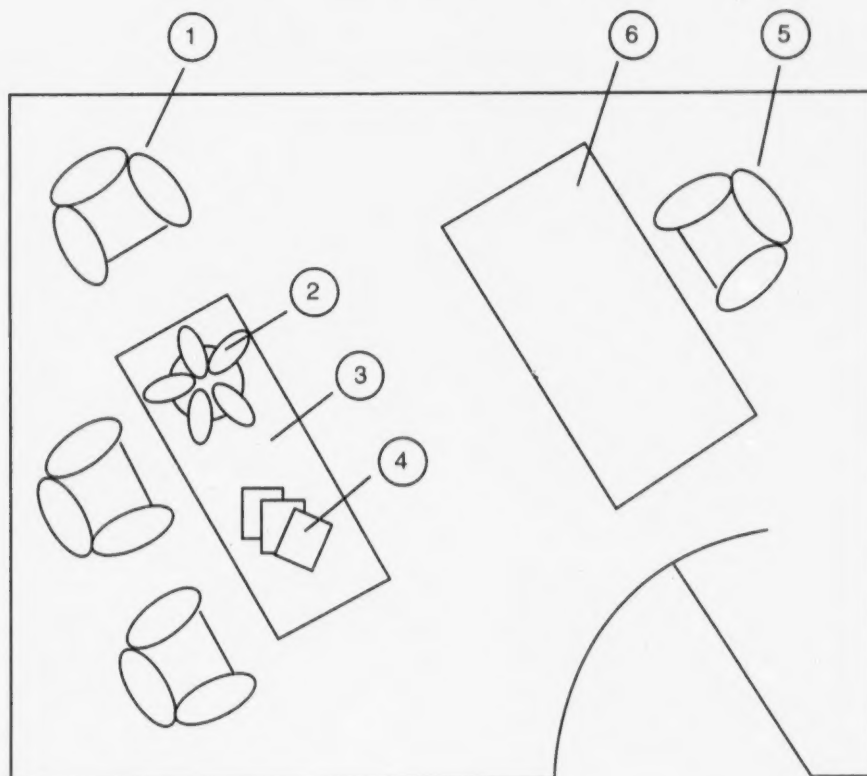
Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00	Q — Quarterly / 0.016
A/D — Alternate days / 0.50	S/A — Semiannually / 0.008
W — Weekly / 0.20	A — Annually / 0.004
M — Monthly / 0.048	D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 362 cleanable square feet (CSF).

Patient Conference Room



Construction

Size: 10' x 12' (120 SF)
 Floor: Carpeted floor
 Walls: Gypsum, semi-gloss paint
 Ceiling: Dropped ceiling, exposed grid
 Door: Wood entry door

Features

1. 3 - Upholstered chairs
2. Plant
3. 2' x 3' low table
4. Magazines
5. Desk chair
6. Desk

Matrix 30 Patient Conference Room

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean telephone	D 0.42	D 0.42				0.42
Dust blinds	W 0.72	W 0.72				3.60
Dust furniture and flat surfaces	D 0.30	D 0.30				0.30
Clean windows	W 0.24	W 0.24				1.21
Empty waste containers	D .66	D .66				.66
Spot-clean carpets	W 0.21	W 0.21				1.05
Relamp	D/A 0.09	D/A 0.09				1.00
Dust vents	W 0.39	W 0.39				1.93
Spot clean walls, partitions, and door	D 0.59	D 0.59				0.59
Vacuum carpet, straighten furniture	D 2.10	D 2.10				2.10
Adjusted minutes subtotal	5.72	5.72				
CSF/Custodian	8,811	8,811				
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Clean trash containers	M 0.06	M 0.06				1.30
Perform interim carpet care	M 0.21	M 0.21				4.33
Perform restorative carpet care	0.08	0.08				9.87
Adjusted minutes subtotal	0.35	0.35				
Total adjusted minutes	6.07	6.07				
CSF/Custodian	8,303	8,303				

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

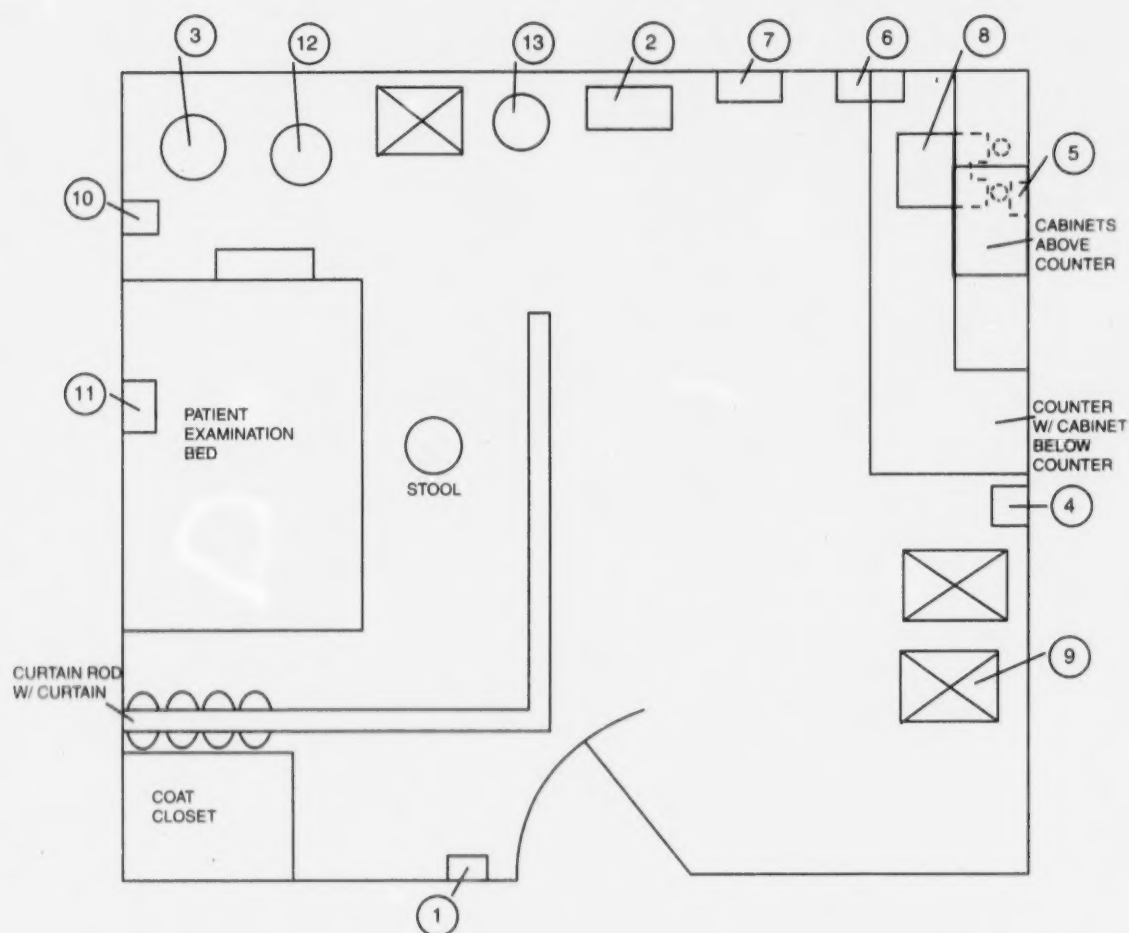
A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 120 cleanable square feet (CSF).

Patient Treatment Room with Carpeted Floor



Construction

Size: 11' x 15' (165 SF)
 Floor: Carpet
 Walls: Gypsum, semi-gloss latex paint
 Cabinets: Cabinets below counters have composite drawers & doors
 Cabinets above counters have composite doors
 Doors: Wood entry door
 Lighting: 4 recessed two-tube fluorescents

Features

1. Telephone
 2. Trash receptacles
 3. Bio waste receptacles
 4. Sharps container
 5. Soap dispenser
 6. Towel dispenser
 7. Mirror lighted
 8. Sink
 9. 3 Chairs
 10. Blood pressure gauge
 11. Ear/nose/throat scopes
 12. Exam lamps
 13. Stainless steel exam dispenser

Matrix 31 Patient Treatment Room with Carpeted Floor

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean, disinfect patient table	D 1.00	D 1.00				1.00
Clean, disinfect portable equipment	D 4.50	D 4.50				4.50
Clean, disinfect sink	D 2.22	D 2.22				2.22
Clean telephone	W 0.07	W 0.07				0.37
Relamp	D/A 0.03	D/A 0.03				3.91
Dust high surfaces	W 0.12	W 0.12				0.61
Dust, clean, disinfect flat surfaces	D 1.19	D 1.19				1.19
Dust blinds	D 2.58	D 2.58				2.58
Empty trash	D 0.30	D 0.30				0.30
Remove dirty linen	D 0.60	D 0.60				0.60
Remove hazardous waste	D 0.30	D 0.30				0.30
Restock dispensers	D 2.76	D 2.76				2.76
Spot clean walls and door	D 1.91	D 1.91				1.91
Vacuum carpet, straighten furniture	D 2.88	D 2.88				2.88
Adjusted minutes subtotal CSF/Custodian	20.46 3,387	20.46 3,387				
Project Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Project clean patient table	S/A 0.08	S/A 0.08				10.00
Perform interim carpet care	M 0.33	M 0.33				6.78
Perform restorative carpet care	S/A 0.11	S/A 0.11				13.57
Adjusted minutes subtotal	0.52	0.52				
Total adjusted minutes CSF/Custodian	20.98 3,303	20.98 3,303				

Frequency Codes/Daily Adjustment Factor

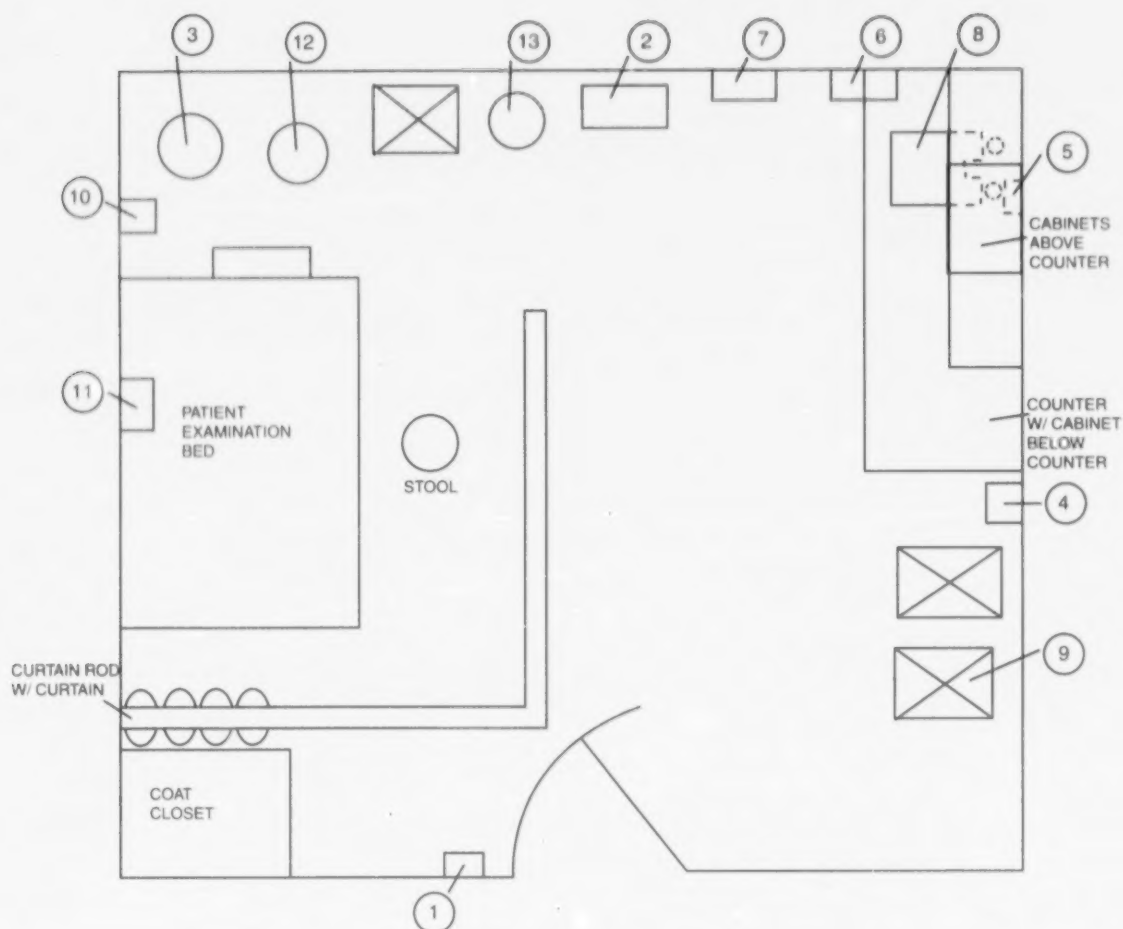
D — Daily / 1.00
 A/D — Alternate days / 0.50
 W — Weekly / 0.20
 M — Monthly / 0.048

Q — Quarterly / 0.016
 S/A — Semiannually / 0.008
 A — Annually / 0.004
 D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 165 cleanable square feet (CSF)

Patient Treatment Room with Hard Floor



Construction

- Size: 11' x 15' (165 SF)
 Floor: Vinyl tile
 Walls: Gypsum, semi-gloss latex paint
 Cabinets: Cabinets below counters have composite drawers & doors
 Cabinets above counters have composite doors
 Doors: Wood entry door
 Lighting: 4 recessed two-tube fluorescents

Features

1. Telephone
2. Trash receptacles
3. Bio waste receptacles
4. Sharps container
5. Soap dispenser
6. Towel dispenser
7. Mirror lighted
8. Sink
9. 3 Chairs
10. Blood pressure gauge
11. Ear/nose/throat scopes
12. Exam lamps
13. Stainless steel exam dispenser

Matrix 32 Patient Treatment Room with Hard Floor

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean, disinfect patient table	D 1.00	D 1.00				1.00
Clean, disinfect portable equipment	D 4.50	D 4.50				4.50
Clean, disinfect sink	D 2.22	D 2.22				2.22
Clean telephone	W 0.07	W 0.07				0.37
Damp-mop floor	D 2.26	D 2.26				2.26
Relamp	D/A 0.03	D/A 0.03				3.91
Dust high surfaces	W 0.12	W 0.12				0.61
Dust, clean, disinfect flat surfaces	D 1.19	D 1.19				1.19
Empty trash	D 0.30	D 0.30				0.30
Dust blinds	D 2.58	D 2.58				2.58
Remove dirty linen	D 0.60	D 0.60				0.60
Remove hazardous waste	D 0.30	D 0.30				0.30
Restock dispensers	D 2.76	D 2.76				2.76
Spot-clean walls and door	D 1.91	D 1.91				1.91
Sweep, dust-mop floor	D 1.87	D 1.87				1.87
Adjusted minutes subtotal CSF/Custodian	21.71 3,192	21.71 3,192				
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Interim floor care	A/W 1.49	A/W 1.49				14.85
Project-clean patient table	S/A 0.08	S/A 0.08				10.00
Strip, refinish floor	S/A 0.23	S/A 0.23				28.48
Adjusted minutes subtotal	1.80	1.80				
Total adjusted minutes CSF/Custodian	23.51 2,948	23.51 2,948				

Frequency Codes/Daily Adjustment Factor

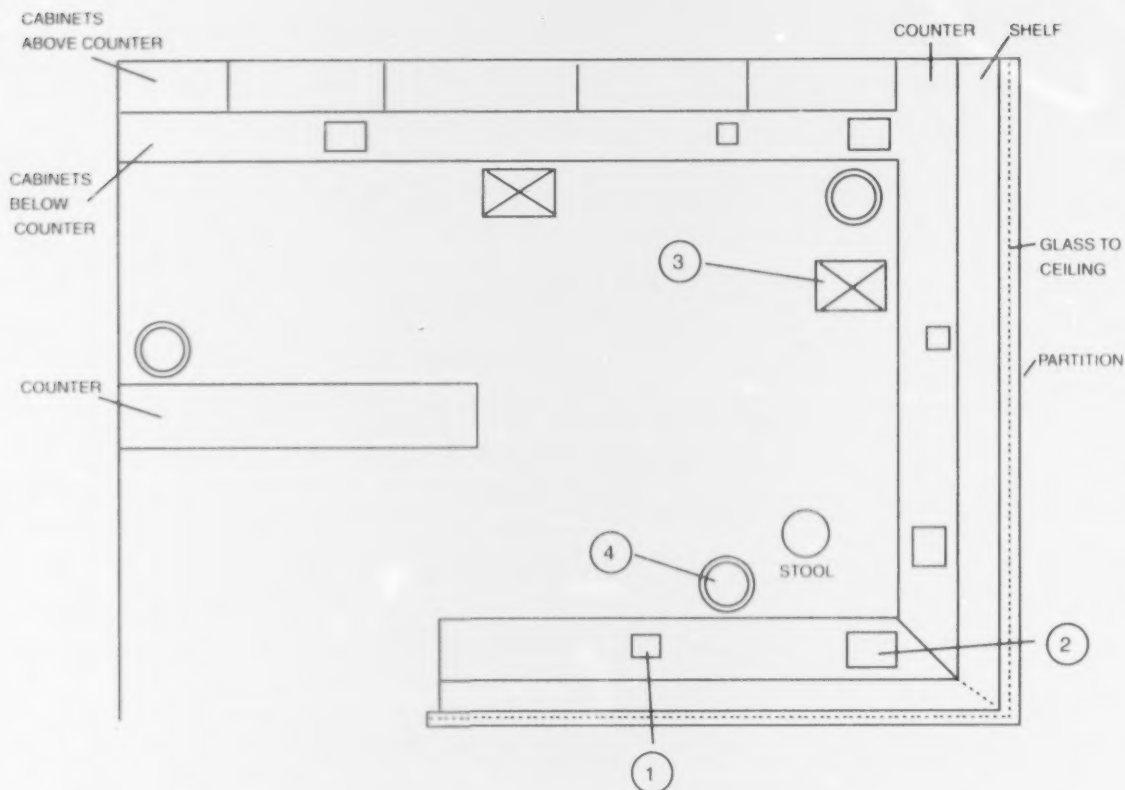
D — Daily / 1.00
 A/D — Alternate days / 0.50
 W — Weekly / 0.20
 M — Monthly / 0.048

Q — Quarterly / 0.016
 S/A — Semiannually / 0.008
 A — Annually / 0.004
 D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 165 cleanable square feet (CSF).

Nursing Station



Construction

Size: 11' x 15' (165 SF)
 Floor: Vinyl tile floor
 Walls: Gypsum, semi-gloss latex paint
 Cabinets: Cabinets below counters have composite drawers & doors.
 Cabinets above counters have composite doors
 Lighting: 4 recessed two-tube fluorescents
 Vents: 2 - 9' x 12' vents

Features

1. 3 Telephones
2. 3 CPUs
3. 2 Chairs
4. Trash receptacles

Matrix 33 Nursing Station

Routine Activities	Frequency Adjusted Time					Base Time
	Level 1	Level 2	Level 3	Level 4	Level 5	
Clean glass	D 2.54	D 2.54				2.54
Clean telephone	W 0.07	W 0.07				0.37
Damp-mop floor	D 2.26	D 2.26				2.26
Dust high surfaces	W 0.12	W 0.12				0.61
Dust, clean, disinfect flat surfaces	D 1.19	D 1.19				1.19
Relamp	D/A 0.03	D/A 0.03				3.91
Empty trash	D 0.30	D 0.30				0.30
Dust vents	W 0.17	W 0.17				0.85
Spot-clean walls and door	D 1.91	D 1.91				1.91
Sweep, dust-mop floor	D 1.87	D 1.87				1.87
Adjusted minutes subtotal CSF/Custodian	10.47 6,625	10.47 6,625				
Project Activities	Level 1	Level 2	Level 3	Level 4	Level 5	Base Time
Interim floor care	A/W 1.49	A/W 1.49				14.85
Strip, refinish floor	S/A 0.23	S/A 0.23				28.48
Adjusted minutes subtotal	1.72	1.72				
Total adjusted minutes CSF/Custodian	12.19 5,690	12.19 5,690				

Frequency Codes/Daily Adjustment Factor

D — Daily / 1.00

A/D — Alternate days / 0.50

W — Weekly / 0.20

M — Monthly / 0.048

Q — Quarterly / 0.016

S/A — Semiannually / 0.008

A — Annually / 0.004

D/A — Daily adjusted (see notes)

Square feet per custodian based on 420 productive minutes per day.

Adjusted minutes are for 165 cleanable square feet (CSF).

APPENDIX E

Normalized Base Times and Standard Activity List

Following are the normalized base times generated from the data provided by the participants in this study. The standard activity list provides the basis upon which these base times were determined.

Normalized Base Times

Auto-scrub floors	12.28 min./1,000 sq. ft.
Clean chalkboards and trays	8.40 min./100 sq. ft.
Clean/disinfect shower room walls, shower fixtures, floors	11.36 min./1,000 sq. ft.
Clean/disinfect toilet bowls	2.38 min. ea.
Clean/disinfect urinals	2.05 min. ea.
Clean doors and windows, both sides	8.71 min./100 sq. ft.
Clean drains	1.39 min. ea.
Clean erasers	0.30 min. ea.
Clean lockers/benches	11.99 min./500 ln. ft.
Clean mirrors	7.68 min./100 sq. ft.
Clean partitions and doors	0.77 min./100 sq. ft.
Clean/roll up walk-off mats	1.11 min. ea.
Clean sinks (laboratory)	2.22 min. ea.
Clean telephones (public)	0.66 min. ea.
Clean telephones (private)	0.37 min. ea.
Clean trash containers	1.09 min. ea.
Clean washbowls	2.09 min. ea.
Clean water fountains	1.60 min. ea.
Clean windows, both sides	12.89 min./100 sq. ft.
Damp-mop/auto-scrub floors	14.56 min./1,000 sq. ft.
Damp-mop floors	13.69 min./1,000 sq. ft.
Damp-mop stairs and landings	31.97 min./1,000 sq. ft.
Dust blinds	10.30 min./100 sq. ft.
Dust short, wide flat surfaces	2.95 min./100 ln. ft.
Dust long, narrow flat surfaces	5.85 min./100 sq. ft.
Dust vents	0.37 min. ea.
Empty/clean ashtrays	0.25 min. ea.
Empty pencil sharpeners	0.60 min. ea.
Empty waste containers	0.65 min. ea.
Hazardous waste removal	6.25 min./site

Interim carpet care	36.04 min./1,000 sq. ft.
Interim floor care (cluttered)	90.01 min./1,000 sq. ft.
Interim floor care (uncluttered)	70.19 min./1,000 sq. ft.
Interim floor care (stairwell)	214.18 min./1,000 sq. ft.
Project-clean furniture/multiple seating	2.30 min. ea.
Project-clean light fixtures	3.59 min. ea.
Project-clean light fixtures (stairwell)	8.14 min. ea.
Project-clean upholstered furniture/partitions	16.54 min. ea.
Project-clean walk-off mats	3.17 min. ea.
Relamp	3.91 min. ea.
Relamp safety fixtures	2.84 min. ea.
Restock soap and toilet paper	0.92 min. ea.
Restorative carpet care	82.28 min./1,000 sq. ft.
Spot-clean carpets	8.83 min./1,000 sq. ft.
Spot-clean entrance doors	0.84 min. ea.
Spot-clean walls and doors	11.57 min./1,000 sq. ft.
Spray-buff/burnish floors	14.45 min./1,000 sq. ft.
Strip/refinish floors	172.58 min./1,000 sq. ft.
Strip/refinish floors and steps	310.29 min./1,000 sq. ft.
Sweep/dust-mop floors (cluttered)	11.36 min./1,000 sq. ft.
Sweep/dust-mop floors (uncluttered)	7.33 min./1,000 sq. ft.
Sweep/dust-mop stairs and landings	24.62 min./1,000 sq. ft.
Sweep outside steps, ramp, and landing	15.78 min./1,000 sq. ft.
Vacuum carpet/straighten furniture	17.56 min./1,000 sq. ft.
Wet-mop/auto-scrub floors and flush floor drains	20.11 min./1,000 sq. ft.

Standard Activity List

Auto-scrub floors. Using an appropriate sized auto-scrub machine and following the manufacturer's directions, auto-scrub the area thoroughly ensuring the corner areas are cleaned. A mop should be used in areas the machine cannot reach. The chemical used for cleaning should be an all-purpose, no-rinse, low-foaming detergent or neutral cleaner.

Change linen. Replace used towels and washcloths with fresh ones according to institutional policy.

Clean chalkboards and trays. Using a chamois-type blackboard eraser, clean board completely. Wet-wipe chalk rails, exchanging erasers and replacing chalk as necessary. Erasers should be vacuumed at a remote location, time not included.

Clean/disinfect shower room walls, shower fixtures, floors. This is a two-step activity, and other work can be accomplished during the "standing time" while the disinfectant is working.

1. With a shower foam gun, according to manufacturer's instructions, spray disinfectant cleaner onto walls, fixtures, and floor.
2. After allowing solution ten minutes to work, rinse solution from surfaces with water. Spray a final coat of disinfectant, allowing it to air-dry on all surfaces.

Clean/disinfect toilet bowls. This is a two-step activity, and other work can be accomplished during the "standing time" while the disinfectant is working.

1. Apply cleaner to toilet bowl according to manufacturer's instructions.
2. After remaining activities are completed, swab toilet bowl thoroughly starting under the rim, flushing twice after swabbing. Disinfect all exterior surfaces including the seat, pipes, and valves.

Clean/disinfect urinals. This is a two-step activity, and other work can be accomplished during the "standing time" while the disinfectant is working.

1. Apply cleaner to urinal according to manufacturer's instructions.
2. After remaining activities are completed, urinal thoroughly and flush twice (if manual). Disinfect all exterior surfaces including the pipes and valves.

Clean doors and windows, both sides. After frame is dusted, spray cleaner onto window and wipe the surface. Squeegee or wipe the window dry and wipe the frames and ledges.

Clean drains. Using a rag or brush, remove all hair, soap film, paper and other debris in drain, ensuring holes are open. Following manufacturer's dilution instructions, pour a prescribed quantity of disinfectant into the drain.

Clean erasers. Vacuum at a central location. Cart should stock clean ones.

Clean glass and TV screen. After frame is dusted, spray cleaner onto glass and wipe the surface. Wipe glass/tube dry and wipe the frame.

Clean lockers/benches. Wipe down lockers, benches, and other flat surfaces with a treated rag.

Clean mirrors. Using a lint-free cloth with glass cleaner, wipe mirrors clean.

Clean partitions and doors. Wipe partitions and walls clean with mild germicidal/disinfectant solution.

Clean/roll-up walk-off mats. After adjusting vacuum head to mat pile, vacuum by pushing machine forward and pulling back, covering each section twice. Roll clean mat and set out of the way.

Clean sinks (laboratory). Employing all personal protective measures (gloves, goggles, etc.) required by applicable regulations, remove any debris and flush

sink thoroughly with cold water. Using a soft sponge and approved cleaner, thoroughly clean the sink and fixtures. Flush and rinse upon completion. Disinfectant cleaners require a ten-minute stand prior to flushing.

Clean tables and seating. Wipe down tables, seating and other flat surfaces with a treated rag.

Clean telephones. Using a lint-free rag dampened with cleaner, wipe the handset and cradle clean. Depress the cradle buttons so the line is not busy.

Clean trash containers. Spray inside of container with disinfectant cleaner. Wipe out and replace liner.

Clean washbowls. Clean out sinks with germicidal/disinfectant cleaner. Wipe clean, and dry all fixture surfaces above and under the sink. Remove debris (hair) from drain stopper.

Clean water fountains. Spray fountain with descaler and give ten minutes standing time. Wipe all surfaces of fixture clean; rinse and polish the brightwork.

Clean windows, both sides. After frame is dusted, spray cleaner onto window and wipe the surface. Squeegee or wipe the window dry and wipe the frames and ledges.

Damp-mop (hard surfaced) floors. Using a 16-ounce cotton mop and appropriately prepared water or cleaning solution, wring mop so that it does not drip and mop area in a figure-8 motion running mop under furniture. Mop should be turned, rinsed, and wrung as necessary.

Damp-mop stairs and landings. Using a 16-ounce cotton mop and appropriately prepared water or cleaning solution, wring mop so that it does not drip and mop area, paying particular attention to corners. Mop should be turned, rinsed, and wrung as necessary.

Damp-mop vinyl floor (under seating). Using a 16-ounce cotton mop and appropriately prepared water or cleaning solution, wring mop so that it does not drip and mop area, paying particular attention to the area under the base of the seating.

Dust blinds. With a treated tool, wipe down closed blind on both sides.

Dust flat surfaces, including bleachers, counters, dryers, fireplaces, furniture arms and backs, sinks, stoves, or washers. Wipe down surfaces as needed with treated cloth. Use a damp cloth to wipe up spills and specialty tools to clean other material adhering to any surfaces.

Dust vents. Wipe/dust with a treated cloth.

Empty/clean ash trays. Empty the trays of waste. Spray with cleaner. Wipe clean with one rag, polish dry with a second rag.

Empty pencil sharpeners. According to manufacturers, open and empty into a trash receptacle. Reinstall holder and wipe off unit with dust rag.

Empty waste containers. Carry container to cart and empty. Replace liner if necessary.

Hazardous waste removal. Employ all personal protective measures (gloves, goggles, etc.) required by applicable regulations. Remove liner and contents from receptacle, being watchful for sharps. Appropriately seal it and place it on cart. Sanitize receptacle by spraying with disinfectant and wiping, then reline it.

Interim carpet care. After vacuuming and spot-cleaning carpet, place bonnet on buffer that is damp with cleaner. Circulate bonnet on carpet, concentrating on high-soil areas, rinsing bonnet and changing cleaning solution as each gets dirty.

Interim floor care — hard surface. Move furniture, dust and damp-mop the floor. Strip top coat of finish from floor with one of the following methods:

- Light scrub with 175/300 RPM machine.
- Light scrub with automatic floor machine.
- Dry stripping procedure.
- Apply two coats of new finish to the prepared surface, replacing furniture when dry.

Interim floor care — stairwell. Strip top coat of finish from surface with manual swivel scrub brushes on steps and automatic floor machine on extended landings. Apply two coats of new finish to prepared surface.

Make Bed. Bringing fresh sheets and pillowcases for both beds from cart, strip bed. Make bed with the fresh sheets and pillowcases. Replace blanket and bed spread, stretching out wrinkles to institution's standards. Place used linen in hamper on cart.

Project-clean bleacher framework. Remove all debris from the frame. Work under the bleachers dusting and damp-wiping framework as necessary.

Project-clean furniture, multiple seating including bleachers. After removing gum, etc., wash the top, seat and other surfaces with an appropriate cleaning solution.

Project-clean light fixtures. On an appropriate ladder, remove or lower the light cover. With a damp cloth, using glass cleaner, wipe the light cover and frame. Replace the light cover securely.

Project-clean tables and seating. Remove gum, etc., wash top, seats, and other surfaces with an appropriate cleaning solution.

Project-clean upholstered seats/furniture/partitions. After pre-treating soiled areas and vacuuming, clean with a dry foam upholstery machine according to manufacturer's instructions. Wipe excess foam from surfaces and vacuum again after surfaces have dried.

Project-clean walk-off mats. After vacuuming (that time is not included, as it is part of routine service) remove mats to an open, well drained area. Wash them with a high-pressure hose or carpet extractor.

Relamp fluorescent fixtures. Setting up an appropriate ladder securely, remove or lower light cover and replace all bulbs in the fixture. Using damp cloth with glass cleaner, wipe light cover and frame. Replace light cover securely and remove the ladder.

Relamp incandescent spot light bulb. Turning off power, if practicable, and using a bulb "sucker" according to manufacturer's instructions, remove light bulb and replace with similar size and wattage. Report malfunctioning fixtures to appropriate person.

Relamp safety fixtures. After loosening or removing cover and grate (if fixture has one), remove the bulb. Wipe the fixture with a dry cloth; wash the cover and grate with a damp cloth. After installing a new bulb, replace the grate and cover.

Replace ash trays. Discard used, disposable ash trays in trash container on cart and replace with new.

Restock soap and toilet paper. Refill soap and toilet paper dispensers, ensuring they are operational.

Restorative carpet care. Move portable furniture, spot and vacuum the floor. Clean the entire carpet with an extraction machine according to manufacturer's instructions. Allow to dry overnight, placing carpet protectors under metal-tipped furniture legs.

Spot-clean carpets. Scrape solid spots with a putty knife. Apply spot remover to soiled spots, brushing in after 20 to 30 seconds of set time. Blot liquid spills. Repeat steps as necessary. Vacuum after any one or combination of the above procedures.

Spot-clean entrance doors. Remove finger smudges, spots, or graffiti from entrance doors as required with appropriate cleaning materials.

Spot-clean walls and doors. Remove finger smudges, spots, or graffiti from entrance doors as required with appropriate cleaning materials.

Spot-clean walls, partitions, doors, and/or vending machines. Remove finger smudges from light switches, glass partitions, doors and door glass, etc., and spot-clean wall surfaces as required with appropriate cleaning materials.

Spray-buff/burnish floors.

- *Spray-buff:* with a red pad on a 175/300 RPM machine, spray a fine mist of solution on the floor while buffing in a back-and-forth, overlapping motion. Dust-mop afterward.
- *Dry burnishing:* with a white pad on a 1,000 RPM machine, burnish floor in a forward motion, overlapping passes. Dust-mop afterward.

Strip/refinish floors, strip/refinish (under seating), and strip/refinish floors and steps. Move furniture. Liberally apply stripping solution with mop and allow to stand 3 to 5 minutes. Using a 375/500 RPM machine with a coarse pad, completely emulsify the old finish. Under seating, manual swivel brushes will be required for this operation. Wet-vacuum the floor before the emulsion dries. Rinse the floor twice with neutralizing solution, wet vacuuming the rinse solution after each application. Allow the floor to dry prior to applying one coat of sealer and two coats of top finish.

Strip/refinish painted or varnished wood floors. Using a 200 grit sanding disc or whatever is recommended by the finish supplier. Remove/roughen the old finish from the floor using a low-speed buffer working in both a north-south, then east-west direction. Tack-rag and/or vacuum dust up from floor and cracks. Apply new finish/paint in accordance with manufacturer's instructions. This is a task requiring a good deal of skill. Workers should be properly trained.

Sweep/dust-mop gymnasium floor, bleachers retracted. Using a pre-treated 36-inch swivel-head mop, dust mop the length of the gymnasium. Sweep debris into piles at either end of the area and dispose of in an appropriate container.

Sweep/dust-mop (hard surfaced) floors. Using a pre-treated 24-inch swivel-head mop, dust-mop in a figure-8 motion, running mop behind fixtures.

Sweep/dust-mop (hard surfaced) floors, straighten furniture. Using a pre-treated 24-inch swivel-head mop, dust-mop in a figure-8 motion, running mop under and/or lifting furniture, straightening furniture while proceed-

ing. Other tools such as counter brushes, brooms, dust pans, scrapers and treated dust clothes may be used to clean corners, remove gum, etc.

Sweep/dust-mop stairs and landings. Using a pre-treated 24-inch swivel-head mop and starting from the highest point, sweep in a straight motion, depositing the residue from step-to-step.

Sweep/dust-mop vinyl floor (under seating). Using a pre-treated 24-inch swivel-head mop and starting from the highest point, sweep in a straight motion, depositing the residue from level to level. Other tools such as counter brushes, brooms, dust pans, scrapers and treated dust clothes may also be required. Sweep debris into a pile and dispose of in an appropriate container.

Sweep outside steps, ramp, and landing. With yard broom sweep debris into a pile and dispose of in an appropriate container.

Vacuum carpet/straighten furniture. After adjusting the vacuum head to the carpet pile, vacuum by pushing machine forward and pulling back, covering each section twice. Move small items of furniture and vacuum.

Wet-mop/auto-scrub floors/flush floor drains. Wet-mop or auto-scrub floor using a germicidal/disinfectant solution in a spray bottle. When done either use a hose or bucket to flush floor drains with fresh water.

APPENDIX F

Audit Forms

Included in this appendix are examples of audit instruments that you may wish to use at your facility as they are, or you may wish to tailor to your specific institution and needs. Examples 1 and 2 represent examples of a single audit form that may be used for all types of space. Example 3 represents the concept of multiple forms, one form for each type of space. Example 1 utilizes the pass-fail concept, where examples 2 and 3 utilize the weighted average concept. Example 3 is the concept discussed in Chapter 7.

- Example 1: Judy A. Stead, University of Toledo, Toledo, Ohio
- Example 2: Jimmy J.D. Davis, University of Arkansas, Fayetteville, Arkansas
- Example 3: Jack C. Dudley, INFORMED, Inc., Racine, Wisconsin

**Building Services
Inspection Form
University of Toledo**

Building _____ Date _____ Floor _____

Employee _____ Manager _____

Clean	Dirty	Check the following:
_____	_____	(1) Restrooms
_____	_____	a. Wastecans (inside & out)
_____	_____	b. Stools (inside and out)
_____	_____	c. Mirrors, inc. tops
_____	_____	d. Dispensers
_____	_____	e. Partitions, doors, walls, ledges, tops & hinges
_____	_____	f. Frames inside/out (hinges, kickplates, jams, closures & knobs)
_____	_____	g. Window sills
_____	_____	h. Ceiling and Wall vents
_____	_____	i. Furniture
_____	_____	j. Floors/drains
_____	_____	k. urinals (inside & out)
_____	_____	l. Spots on walls, sink edges, door knobs, light switches & toilets
_____	_____	m. Sinks
_____	_____	n. Coat racks

Comments item 1: _____

Clean	Dirty	(2) Shower Rooms and Lockers
_____	_____	a. Floors
_____	_____	b. Walls
_____	_____	c. Fixtures
_____	_____	d. Drains
_____	_____	e. Lockers (tops and sides)

Comments item 2: _____

Clean	Dirty	(3) Classrooms/Laboratories	Clean	Dirty	Carpet
_____	_____	a. Floors	_____	_____	a. spots
_____	_____	b. Walls	_____	_____	b. edges
_____	_____	c. Fixtures	_____	_____	c. corners
_____	_____	d. Drains	_____	_____	d. under desks
_____	_____	e. Lockers (tops and sides)	_____	_____	e. edges of furniture
_____	_____	Furnishings	_____	_____	f. baseboards
_____	_____	a. Desktops / shelves			
_____	_____	b. Window edges / chalk trays			
_____	_____	c. Countertops (where applicable)			
_____	_____	d. Sink and splashboard			
_____	_____	e. Wastecans			

Comments item 3: _____

Example 1: Page 2 of 2

Clean	Dirty	(4) Entranceways, Stairs, Landings, Corridors
_____	_____	a. Cobwebs
_____	_____	b. Ledges or counters
_____	_____	c. Entrance doors and glass
_____	_____	d. Miscellaneous (fire ext., pictures, etc.)
_____	_____	e. Floors and thresholds
_____	_____	f. mats (underneath included)
_____	_____	g. Steps
_____	_____	h. Risers
_____	_____	i. Banisters
_____	_____	j. Window sills, painted doors and walls
_____	_____	k. Elevator threshold

Comments item 4: _____

Clean	Dirty	(5) Elevators
_____	_____	a. Doors & Frames
_____	_____	b. Floor, carpet edges
_____	_____	c. Tracks
_____	_____	d. Walls

Comments item 5: _____

Clean	Dirty	(6) Offices
_____	_____	a. Desks, tops
_____	_____	b. Phone receivers
_____	_____	c. Files (tops)
_____	_____	d. Tables (ledges & legs)
_____	_____	e. Counters (tops and ledges)
_____	_____	f. Coat racks (complete)
_____	_____	g. Doors (knobs, hinges, jams, kickplates, frames & closure)
_____	_____	h. Wastebaskets (inside & out)

Comments item 6: _____

Acceptable	Unacceptable	(7) Personnel
_____	_____	a. Uniform
_____	_____	b. Neat Appearance
_____	_____	c. Personal Hygiene

Comments item 7: _____

Clean	Dirty	(8) Janitor's Closet
_____	_____	a. Sink, floors, shelves, equipment, supplies labeled

Comments item 8: _____

NOTE: FURTHER COMMENTS MAY BE MADE ON A SEPARATE SHEET AND ATTACHED.

Example 2: page 1 of 4

UNIVERSITY OF ARKANSAS

**PHYSICAL PLANT
CUSTODIAL SERVICES**

**BUILDING INSPECTION
REPORT FORM**

BUILDING: _____

EMPLOYEE: _____

COORDINATOR: _____

DATE: _____

Example 2: page 2 of 4

Entrance

Location _____

- | | | | | | |
|----|-------------------------------|-------|---------|-----|-----|
| 1. | Outside walks free of litter? | _____ | P.....F | N/A | 10% |
| 2. | Cigarette urns clean? | _____ | P.....F | N/A | 5% |
| 3. | Entrance glass clean? | _____ | P.....F | N/A | 20% |
| 4. | Entrance mats clean? | _____ | P.....F | N/A | 20% |
| 5. | Inside floors clean? | _____ | P.....F | N/A | 25% |
| 6. | Inside walls clean? | _____ | P.....F | N/A | 10% |
| 7. | Waste cans and liners clean? | _____ | P.....F | N/A | 10% |

ENTRANCE SCORE _____

CLASSROOMS

Location _____

- | | | | | | |
|----|------------------------------|-------|---------|-----|-----|
| 1. | Floors clean? | _____ | P.....F | N/A | 30% |
| 2. | Walls clean? | _____ | P.....F | N/A | 10% |
| 3. | Area free of dust? | _____ | P.....F | N/A | 15% |
| 4. | Waste cans and liners clean? | _____ | P.....F | N/A | 10% |
| 5. | Furniture clean? | _____ | P.....F | N/A | 10% |
| 6. | Chalkboard clean? | _____ | P.....F | N/A | 10% |
| 7. | Vents clean? | _____ | P.....F | N/A | 5% |
| 8. | Windows and sills clean? | _____ | P.....F | N/A | 5% |
| 9. | Blinds clean? | _____ | P.....F | N/A | 5% |

CLASSROOM SCORE _____

Equipment

Room # _____

- | | | | | | |
|----|--------------------------------------|-------|---------|-----|-----|
| 1. | Brute and caddy clean and organized? | _____ | P.....F | N/A | 10% |
| 2. | Vacuum clean? | _____ | P.....F | N/A | 5% |
| 3. | Buffer clean? | _____ | P.....F | N/A | 20% |
| 4. | Mop bucket and wringer clean? | _____ | P.....F | N/A | 20% |
| 5. | Dust mop clean? | _____ | P.....F | N/A | 25% |
| 6. | Goggles ready and accessible? | _____ | P.....F | N/A | 10% |
| 7. | Gloves readily accessible? | _____ | P.....F | N/A | 10% |

EQUIPMENT SCORE _____

Custodial Closet

Room # _____

- | | | | | | |
|----|---|-------|---------|-----|-----|
| 1. | Floors clean? | _____ | P.....F | N/A | 20% |
| 2. | Deep sink and drain clean? | _____ | P.....F | N/A | 5% |
| 3. | Equipment stored properly? | _____ | P.....F | N/A | 10% |
| 4. | Shelves organized and adequately stocked? | _____ | P.....F | N/A | 10% |
| 5. | Walls clean? | _____ | P.....F | N/A | 10% |
| 6. | Area free of dust? | _____ | P.....F | N/A | 10% |
| 7. | All chemicals stored below eye level? | _____ | P.....F | N/A | 15% |
| 8. | All chemicals properly labeled? | _____ | P.....F | N/A | 20% |

CUSTODIAL CLOSET SCORE _____

Example 2: page 3 of 4

Hallway

Location _____

1.	Floors clean? _____	P.....F	N/A	40%
2.	Walls clean? _____	P.....F	N/A	10%
3.	Area free of dust? _____	P.....F	N/A	15%
4.	Waste cans and liners clean? _____	P.....F	N/A	10%
5.	Vents clean? _____	P.....F	N/A	5%
6.	Windows and sills clean? _____	P.....F	N/A	10%
7.	Blinds clean? _____	P.....F	N/A	5%
8.	Water fountain clean? _____	P.....F	N/A	5%

HALLWAY SCORE _____

Elevator and Stairs

Elevator Location _____

1.	Floors clean? _____	P.....F	N/A	35%
2.	Elevator tracks clean? _____	P.....F	N/A	10%
3.	Walls clean? _____	P.....F	N/A	5%

Stairs Location _____

1.	Steps clean? _____	P.....F	N/A	20%
2.	Landings clean? _____	P.....F	N/A	15%
3.	Railings clean? _____	P.....F	N/A	10%
4.	Walls clean? _____	P.....F	N/A	5%

ELEVATOR AND STAIR SCORE _____

OFFICE

ROOM# _____

1.	Floors clean? _____	P.....F	N/A	30%
2.	Walls clean? _____	P.....F	N/A	5%
3.	Area free of dust? _____	P.....F	N/A	15%
4.	Wastebaskets and liners clean? _____	P.....F	N/A	10%
5.	Furniture clean? _____	P.....F	N/A	10%
6.	Vents clean? _____	P.....F	N/A	5%
7.	Windows clean? _____	P.....F	N/A	10%
8.	Blinds clean? _____	P.....F	N/A	10%
9.	Telephone clean? _____	P.....F	N/A	5%

OFFICE SCORE _____

Audit Instrument: Offices

Building: _____

Date: _____

Room: _____

Evaluated By: _____

Appearance Level expected: _____

Employee Signature: _____

Appearance Items	Weighting Factor	Appearance Level					Item raw score (factor x level)
		1	2	3	4	5	
Floors	55						
Horizontal surfaces	12						
Lighting and light fixtures	3						
Trash containers and pencil sharpeners	23						
Vertical surfaces	7						
Total raw score.....							
Level = raw score ÷ 100.....							

Audit Comments: _____

[illegible]**Instructions:**

Determine the level of clean for each appearance item based on the appearance factors below. Multiply the level of clean times the weighting factor, this equals the item raw score. Total raw score equals the sum of all item raw scores. Divide the total raw score by 100, this equals your current level of clean.

Appearance item notes:

- "Horizontal Surfaces" include ashtrays, telephones, furniture and drinking fountains.
- "Vertical Surfaces" include walls, doors, windows, mirrors, vents, blinds and partitions.
- "Toilets" refers to all fixtures in the washroom including urinals, sinks, soap dispensers and drying fixtures.

Appearance Factors At Each Cleaning Level.

- See the back for this form to review Appearance Levels definitions.

Example 3 page 2 of 9

Audit Instrument: Entryways and Lobbies

Building: _____

Date: _____

Room: _____

Evaluated By: _____

Appearance Level expected: _____

Employee Signature: _____

Appearance Items	Weighting Factor	Appearance Level					Item raw score (factor x level)
		1	2	3	4	5	
Floors	52						
Lighting and light fixtures	1						
Outside walks and ramps (10')	9						
Vertical surfaces; walls, doors, windows, vents, blinds, partitions	26						
Walk-off mats	12						
Total raw score.....							
Level = raw score ÷ 100.....							

Audit Comments: _____

Instructions:

Determine the level of clean for each appearance item based on the appearance factors below. Multiply the level of clean times the weighting factor, this equals the item raw score. Total raw score equals the sum of all item raw scores. Divide the total raw score by 100, this equals your current level of clean.

Appearance item notes:

- "Horizontal Surfaces" include ashtrays, telephones, furniture and drinking fountains.
- "Vertical Surfaces" include walls, doors, windows, mirrors, vents, blinds and partitions.
- "Toilets" refers to all fixtures in the washroom including urinals, sinks, soap dispensers and drying fixtures.

Appearance Factors At Each Cleaning Level.

- See the back for this form to review Appearance Levels definitions.

Audit Instrument: Classrooms

Building: _____

Date: _____

Room: _____

Evaluated By: _____

Appearance Level expected: _____

Employee Signature: _____

Appearance Items	Weighting Factor	Appearance Level					Item raw score (factor x level)
		1	2	3	4	5	
Chalkboards and erasers...	15						
Floors	67						
Horizontal surfaces	8						
Lighting and light fixtures	2						
Trash containers and pencil sharpeners	4						
Vertical surfaces; walls, doors, windows, vents, blinds, partitions	4						
Total raw score.....							
Level = raw score ÷ 100.....							

Audit Comments: _____

[illegible]**Instructions:**

Determine the level of clean for each appearance item based on the appearance factors below. Multiply the level of clean times the weighting factor, this equals the item raw score. Total raw score equals the sum of all item raw scores. Divide the total raw score by 100, this equals your current level of clean.

Appearance item notes:

- "Horizontal Surfaces" include ashtrays, telephones, furniture and drinking fountains.
- "Vertical Surfaces" include walls, doors, windows, mirrors, vents, blinds and partitions.
- "Toilets" refers to all fixtures in the washroom including urinals, sinks, soap dispensers and drying fixtures.

Appearance Factors At Each Cleaning Level.

- See the back for this form to review Appearance Levels definitions.

Example 3 page 4 of 9

Audit Instrument: Locker / Changing Rooms

Building: _____

Date: _____

Room: _____

Evaluated By: _____

Appearance Level expected: _____

Employee Signature: _____

Appearance Items	Weighting Factor	Appearance Level					Item raw score (factor x level)
		1	2	3	4	5	
Floors	42						
Lighting and light fixtures	1						
Lockers and benches	9						
Showers and drains including shower floor.	35						
Trash containers and pencil sharpeners	3						
Vertical surfaces; walls, doors, windows, vents, blinds, partitions	10						
Total raw score							
Level = raw score ÷ 100							

Audit Comments: _____

Blank lined paper for writing.

Instructions:

Determine the level of clean for each appearance item based on the appearance factors below. Multiply the level of clean times the weighting factor, this equals the item raw score. Total raw score equals the sum of all item raw scores. Divide the total raw score by 100, this equals your current level of clean.

Appearance item notes:

- "Horizontal Surfaces" include ashtrays, telephones, furniture and drinking fountains.
- "Vertical Surfaces" include walls, doors, windows, mirrors, vents, blinds and partitions.
- "Toilets" refers to all fixtures in the washroom including urinals, sinks, soap dispensers and drying fixtures.

Appearance Factors At Each Cleaning Level.

- See the back for this form to review Appearance Levels definitions.

Audit Instrument: Public Area Corridor, Stairwell

Building: _____

Date: _____

Room: _____

Evaluated By: _____

Appearance Level expected: _____

Employee Signature: _____

Appearance Items	Weighting Factor	Appearance Level					Item raw score (factor x level)
		1	2	3	4	5	
Floors	80						
Horizontal surfaces	9						
Lighting and light fixtures	3						
Trash containers and pencil sharpeners	5						
Vertical surfaces: walls, doors, windows, vents, blinds, partitions	3						
Total raw score.....							
Level = raw score ÷ 100.....							

Audit Comments:

[illegible]**Instructions:**

Determine the level of clean for each appearance item based on the appearance factors below. Multiply the level of clean times the weighting factor, this equals the item raw score. Total raw score equals the sum of all item raw scores. Divide the total raw score by 100, this equals your current level of clean.

'Appearance item notes:

- "Horizontal Surfaces" include ashtrays, telephones, furniture and drinking fountains.
- "Vertical Surfaces" include walls, doors, windows, mirrors, vents, blinds and partitions.
- "Toilets" refers to all fixtures in the washroom including urinals, sinks, soap dispensers and drying fixtures.

Appearance Factors At Each Cleaning Level.

- See the back for this form to review Appearance Levels definitions.

Example 3 page 6 of 9

Audit Instrument: Research Labs with Hazardous Waste

Building: _____

Date: _____

Room: _____

Evaluated By: _____

Appearance Level expected: _____

Employee Signature: _____

Appearance Items	Weighting Factor	Appearance Level					Item raw score (factor x level)
		1	2	3	4	5	
Floors	29						
Horizontal surfaces	3						
Lighting and light fixtures	1						
Toilets, urinals, washbowls, soap and drying fixtures	21						
Trash containers and pencil sharpeners	46						
Vertical surfaces; walls, doors, windows, vents, blinds, partitions	2						
Total raw score.....							
Level = raw score ÷ 100.....							

Audit Comments:_____

Instructions:

Determine the level of clean for each appearance item based on the appearance factors below. Multiply the level of clean times the weighting factor, this equals the item raw score. Total raw score equals the sum of all item raw scores. Divide the total raw score by 100, this equals your current level of clean.

Appearance item notes:

- "Horizontal Surfaces" include ashtrays, telephones, furniture and drinking fountains.
- "Vertical Surfaces" include walls, doors, windows, mirrors, vents, blinds and partitions.
- "Toilets" refers to all fixtures in the washroom including urinals, sinks, soap dispensers and drying fixtures.

Appearance Factors At Each Cleaning Level.

- See the back for this form to review Appearance Levels definitions.

Example 3 page 8 of 9

Audit Instrument: Storerooms

Building: _____

Date: _____

Room: _____

Evaluated By: _____

Appearance Level expected:

Employee Signature: _____

Appearance Items	Weighting Factor	Appearance Level					Item raw score (Factor x level)
		1	2	3	4	5	
Floors	89						
Lighting and light fixtures	6						
Vertical surfaces; walls, doors, windows, vents, blinds, partitions	5						
Total raw score.....							
Level = raw score ÷ 100.....							

Audit Comments:

Instructions:

Determine the level of clean for each appearance item based on the appearance factors below. Multiply the level of clean times the weighting factor, this equals the item raw score. Total raw score equals the sum of all item raw scores. Divide the total raw score by 100, this equals your current level of clean.

Appearance item notes:

- “Horizontal Surfaces” include ashtrays, telephones, furniture and drinking fountains.
- “Vertical Surfaces” include walls, doors, windows, mirrors, vents, blinds and partitions.
- “Toilets” refers to all fixtures in the washroom including urinals, sinks, soap dispensers and drying fixtures.

Appearance Factors At Each Cleaning Level.

- See the back for this form to review Appearance Levels definitions.

APPEARANCE FACTORS AT EACH CLEANING LEVEL

Level 1 - Orderly Spotlessness

- Floors and base moldings shine and/or are bright and clean; colors are fresh. There is no buildup in corners or along walls.
- All vertical and horizontal surfaces have a freshly cleaned or polished appearance and have no accumulation of dust, dirt, marks, streaks, smudges or fingerprints. Lights all work and fixtures are clean.
- Washroom and shower fixtures and tile gleam, and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste, are clean and are odor-free.

Level 2 - Ordinary Tidiness

- Floors and base moldings shine and/or are bright and clean. There is no buildup in corners or along walls, but there can be up to two days worth of dust, dirt, stains or streaks.
- All vertical and horizontal surfaces are clean, but marks, dust, smudges and fingerprints are noticeable upon close observation. Lights all work and fixtures are clean.
- Washroom and shower fixtures and tile gleam, and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 3 - Casual Inattention

- Floors are swept or vacuumed clean, but upon close observation there can be stains. A buildup of dirt and/or floor finish in corners and along walls can be seen.
- There are dull spots and/or matted carpet in walking lanes. There are streaks or splashes on base molding.
- All vertical and horizontal surfaces have obvious dust, dirt, marks, smudges and fingerprints. Lamps all work and fixtures are clean.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 4 - Moderate Dinginess

- Floors are swept or vacuumed clean, but are dull, dingy and stained. There is an obvious buildup of dirt and/or floor finish in corners and along walls.
- There is a dull path and/or obviously matted carpet in the walking lanes. Base molding is dull and dingy with streaks or splashes.
- All vertical and horizontal surfaces have conspicuous dust, dirt, smudges, fingerprints and marks. Lamp fixtures are dirty and some (up to 5%) lamps are burned out.
- Trash containers and pencil sharpeners have old trash and shavings. They are stained and marked. Trash containers smell sour.

Level 5 - Unkempt Neglect

- Floors and carpets are dull, dirty, dingy, scuffed and/or matted. There is a conspicuous buildup of old dirt and/or floor finish in corners and along walls. Base molding is dirty, stained and streaked. Gum, stains, dirt, dust balls and trash are broadcast.
- All vertical and horizontal surfaces have major accumulations of dust, dirt, smudges and fingerprints, all of which will be difficult to remove. Lack of attention is obvious.
- Light fixtures are dirty with dust balls and flies. Many lamps (over 5%) are burned out.
- Trash containers and pencil sharpeners overflow. They are stained and marked. Trash containers smell sour.

APPENDIX G

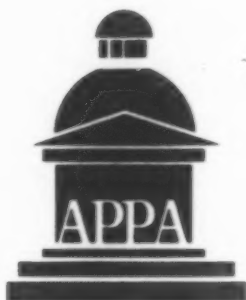
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